US 20050281185A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2005/0281185 A1

Kawasaki (43) Pub. Date: Dec. 22, 2005

(54) CONTENT TRANSFERRING APPARATUS, CONTENT TRANSFERRING METHOD, AND COMPUTER PROGRAM

(75) Inventor: **Makoto Kawasaki**, Tokyo (JP)

Correspondence Address:
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314 (US)

(73) Assignee: **Sony Corporation**, Tokyo (JP)

(21) Appl. No.: **11/139,519**

(22) Filed: **May 31, 2005**

(30) **Foreign Application Priority Data**

Jun. 22, 2004 (JP) 2004-183777

Publication Classification

(51) **Int. Cl.**[7] **G11B 7/24**

(52) **U.S. Cl.** **369/275.3**

(57) **ABSTRACT**

A content transferring apparatus is disclosed which includes: a source ID list reception unit for receiving a source ID list from a content reproducing apparatus capable of reproducing contents furnished with source IDs included in the source ID list; a first extraction unit for extracting from either one or a plurality of transfer-destined contents a content furnished with a source ID included in the source ID list; and a content transmission unit for transmitting the content extracted by the first extraction unit to the content reproducing apparatus.

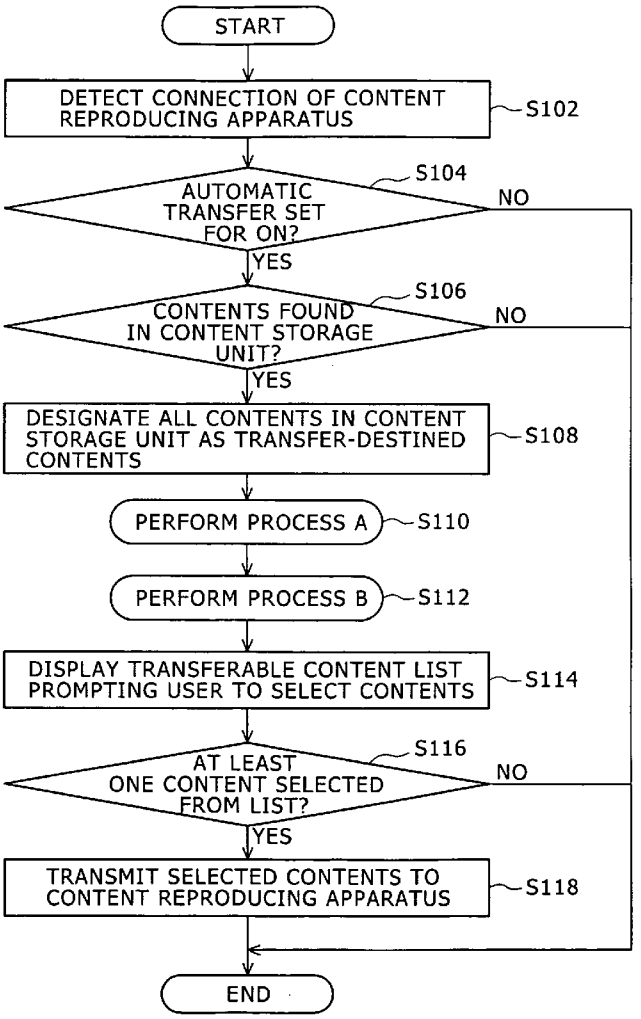


FIG. 1

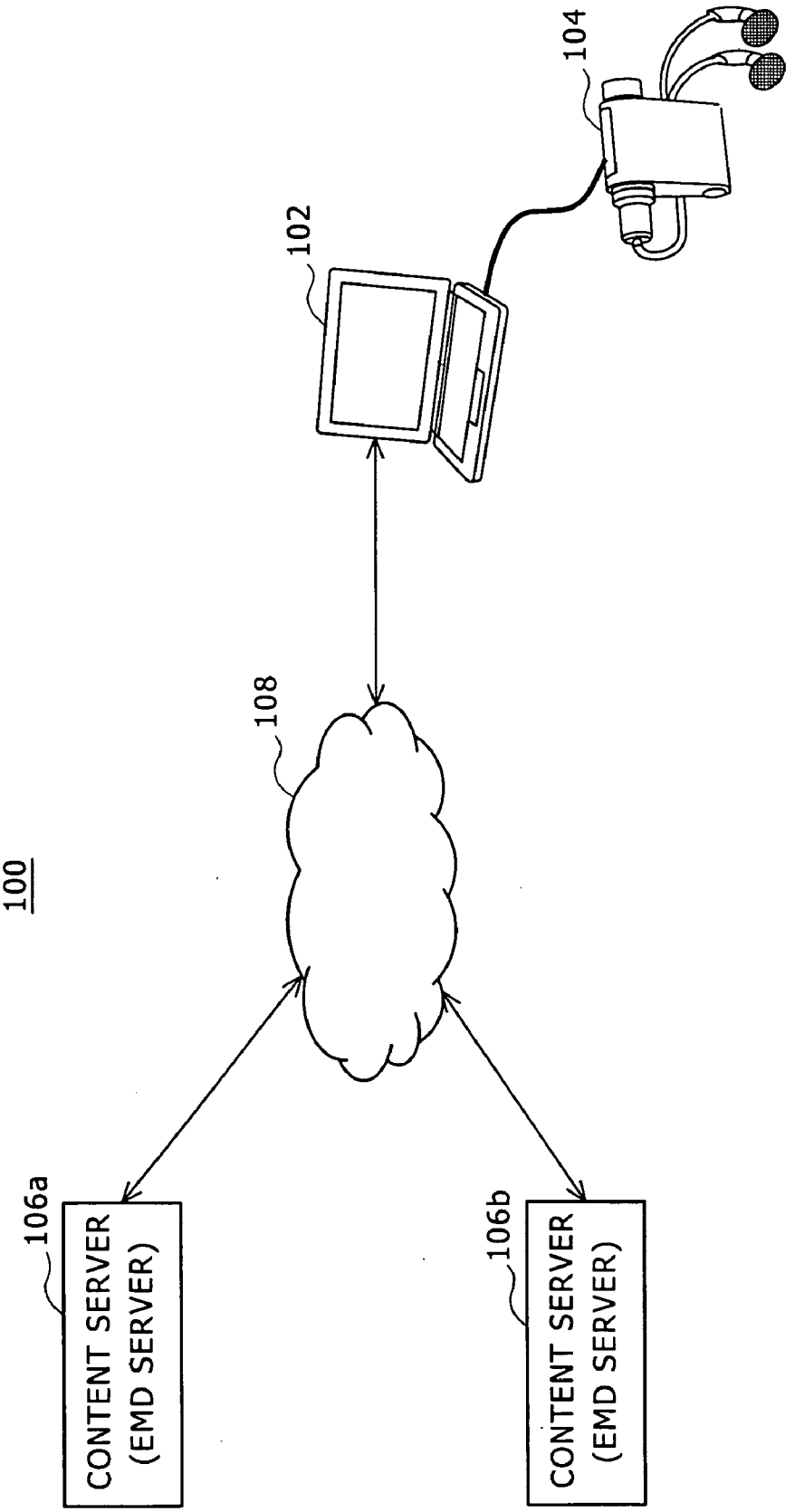

100
102
104
108
106a
CONTENT SERVER (EMD SERVER)
106b
CONTENT SERVER (EMD SERVER)

FIG. 2

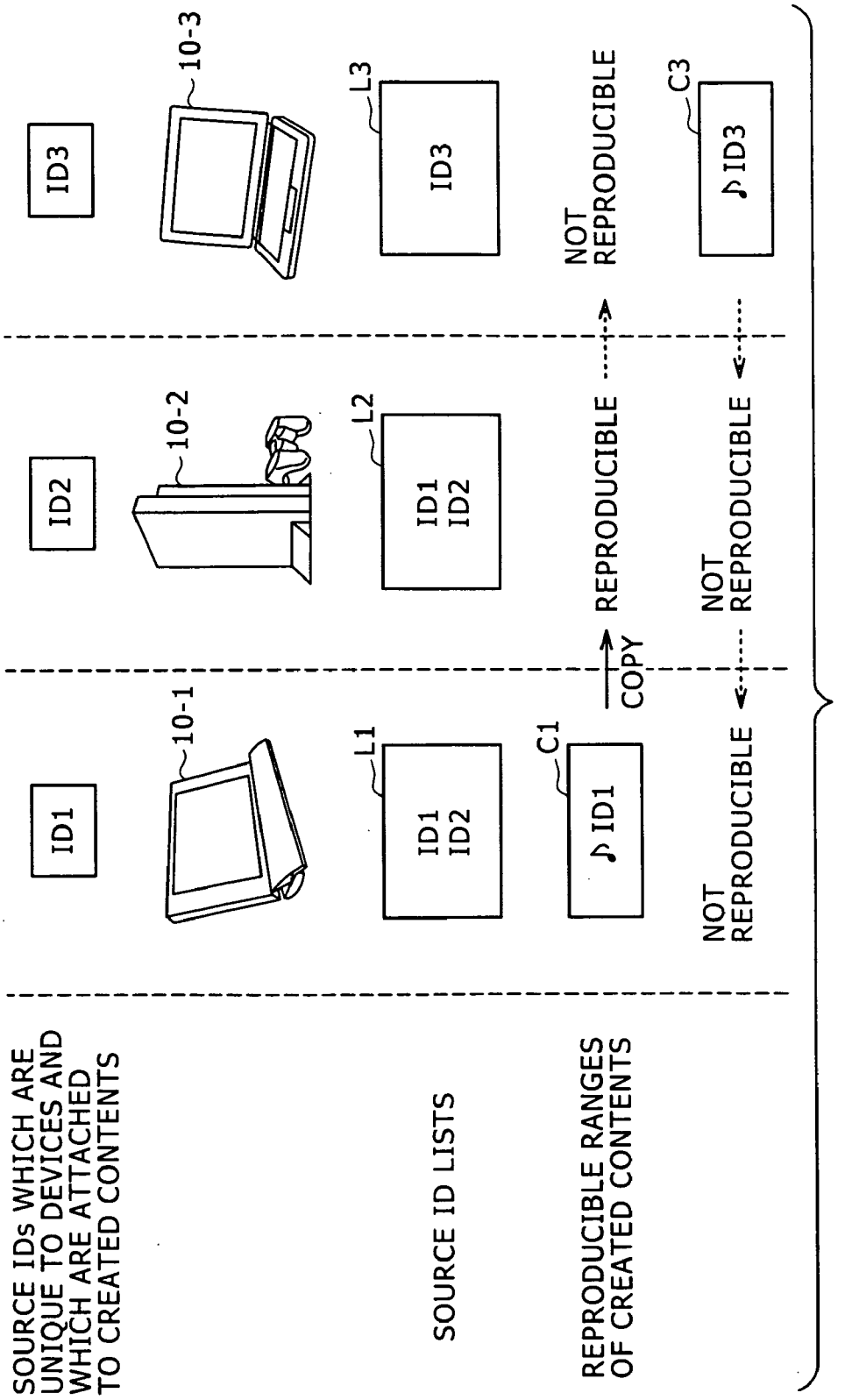

SOURCE IDs WHICH ARE UNIQUE TO DEVICES AND WHICH ARE ATTACHED TO CREATED CONTENTS
SOURCE ID LISTS
REPRODUCIBLE RANGES OF CREATED CONTENTS
ID1
ID2
ID3
10-1
10-2
10-3
L1
L2
L3
ID1 ID2
ID1 ID2
ID3
C1
C3
♪ ID1
♪ ID3
COPY
REPRODUCIBLE
NOT REPRODUCIBLE
NOT REPRODUCIBLE
NOT REPRODUCIBLE

FIG. 3

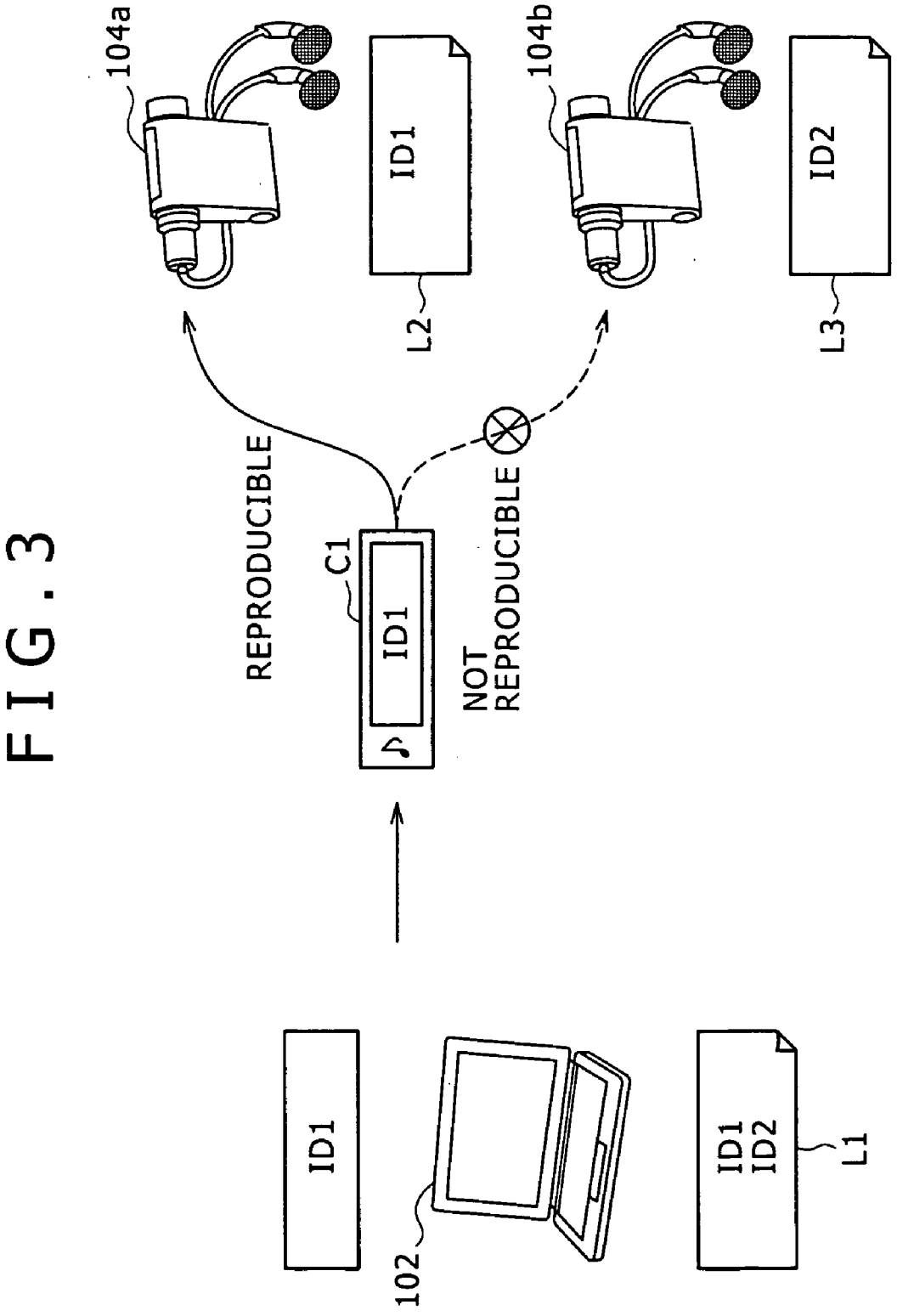

104a
104b
ID1
ID2
L2
L3
REPRODUCIBLE
NOT REPRODUCIBLE
C1
ID1
ID1
ID1
ID2
L1
102

FIG. 4

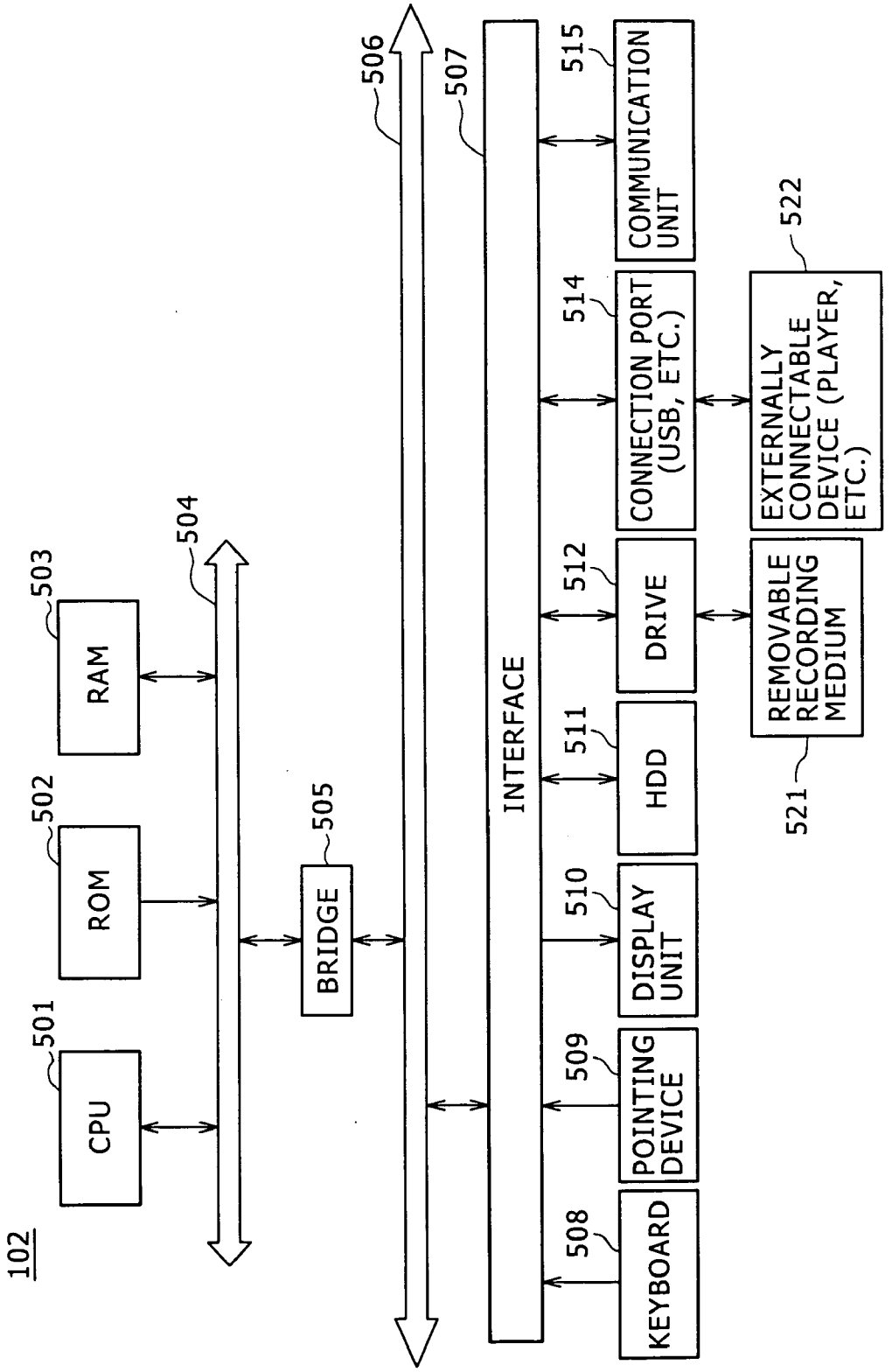

102
CPU
501
ROM
502
RAM
503
504
BRIDGE
505
506
507
INTERFACE
KEYBOARD
508
POINTING DEVICE
509
DISPLAY UNIT
510
HDD
511
DRIVE
512
CONNECTION PORT (USB, ETC.)
514
COMMUNICATION UNIT
515
REMOVABLE RECORDING MEDIUM
521
EXTERNALLY CONNECTABLE DEVICE (PLAYER, ETC.)
522

FIG. 5

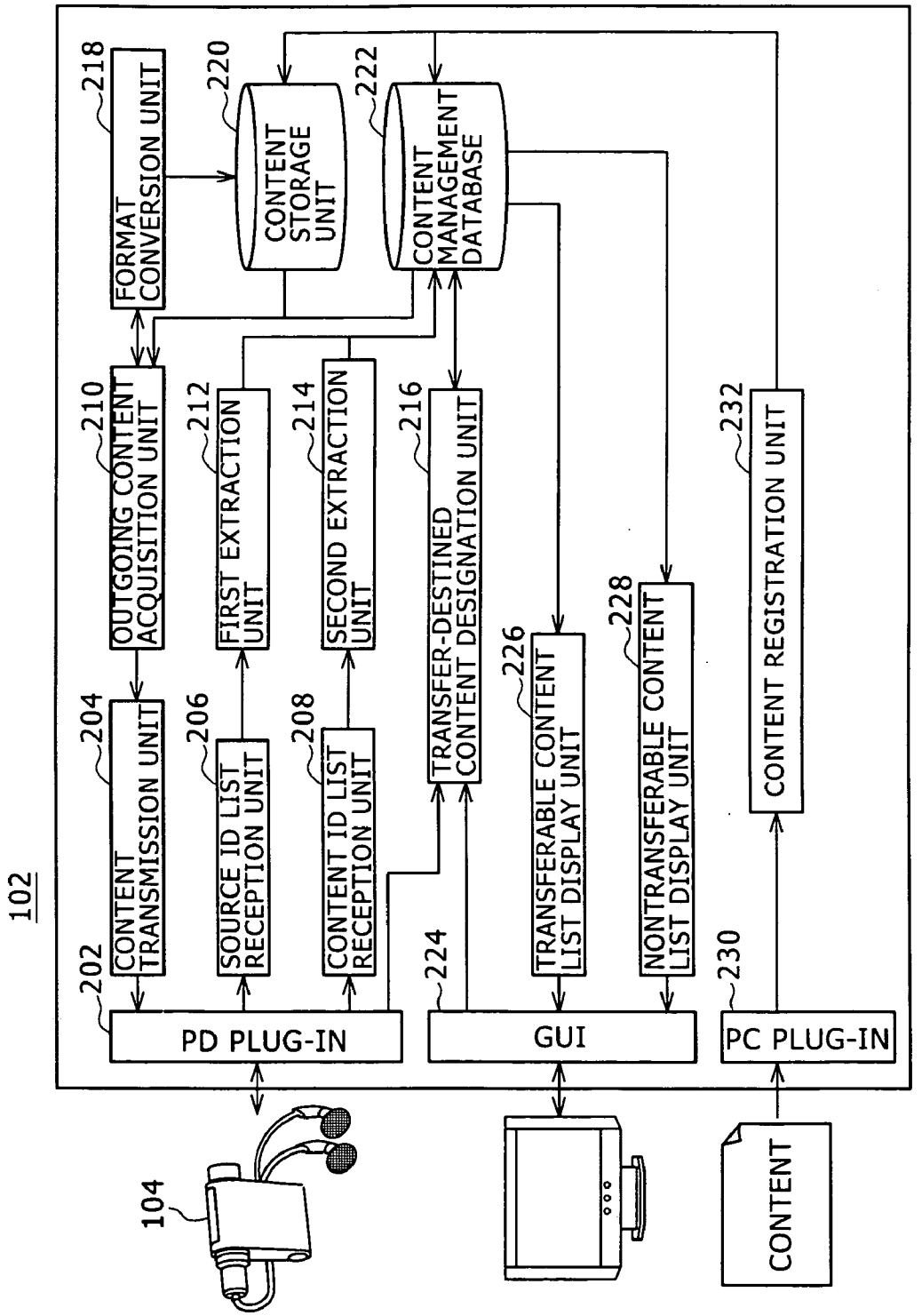

102
202
CONTENT TRANSMISSION UNIT
204
SOURCE ID LIST RECEPTION UNIT
206
CONTENT ID LIST RECEPTION UNIT
208
OUTGOING CONTENT ACQUISITION UNIT
210
FIRST EXTRACTION UNIT
212
SECOND EXTRACTION UNIT
214
TRANSFER-DESTINED CONTENT DESIGNATION UNIT
216
FORMAT CONVERSION UNIT
218
CONTENT STORAGE UNIT
220
CONTENT MANAGEMENT DATABASE
222
224
TRANSFERABLE CONTENT LIST DISPLAY UNIT
226
NONTRANSFERABLE CONTENT LIST DISPLAY UNIT
228
230
CONTENT REGISTRATION UNIT
232
PD PLUG-IN
GUI
PC PLUG-IN
104
CONTENT

FIG. 6

252

302 RECORD ID	304 TYPE	306 TITLE	308 CODEC	310 FILE NAME	312 CONTENT ID	314 SOURCE ID	.....
1	PACKAGE	ALBUM A					.....
2	CONTENT	TRACK 1	ATRAC3plus	C:¥Album-A¥Track1.oma	010F501	C122C7E	.....
3	RENDITION		ATRAC3plus	C:¥Album-A¥Track1.oma	010F501	C122C7E	.....
4	RENDITION		ATRAC3	C:¥Album-A¥Track1-2.oma	010F501	C122C7E	.....
5	RENDITION		MPEG1 Audio Layer3	C:¥Album-A¥Track1.mp3			.....
6	CONTENT	TRACK 2	MPEG1 Audio Layer3	C:¥Album-A¥Track2.mp3			.....
7	RENDITION		MPEG1 Audio Layer3	C:¥Album-A¥Track2.mp3			.....
.....	.....	.....	.....	.....	.....	.....	.....

FIG. 7

254

322 RELATIONAL ID	324 PARENT ID	326 CHILD ID
1	1	2
2	1	5
3	2	3
4	2	4
5	2	5
6	6	7
⋮	⋮	⋮

FIG. 8

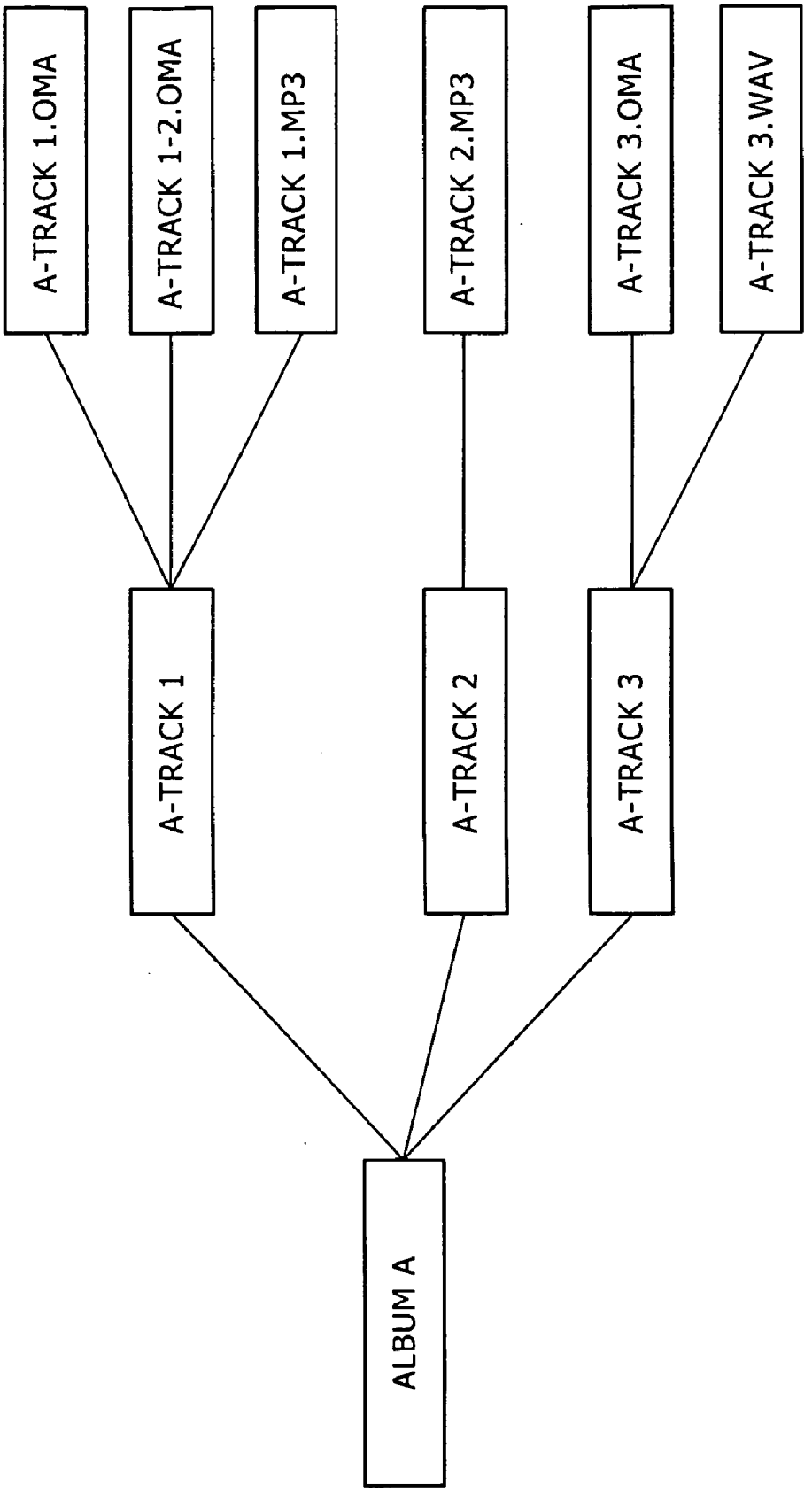

A-TRACK 1.OMA
A-TRACK 1-2.OMA
A-TRACK 1.MP3
A-TRACK 2.MP3
A-TRACK 3.OMA
A-TRACK 3.WAV
A-TRACK 1
A-TRACK 2
A-TRACK 3
ALBUM A

FIG. 9

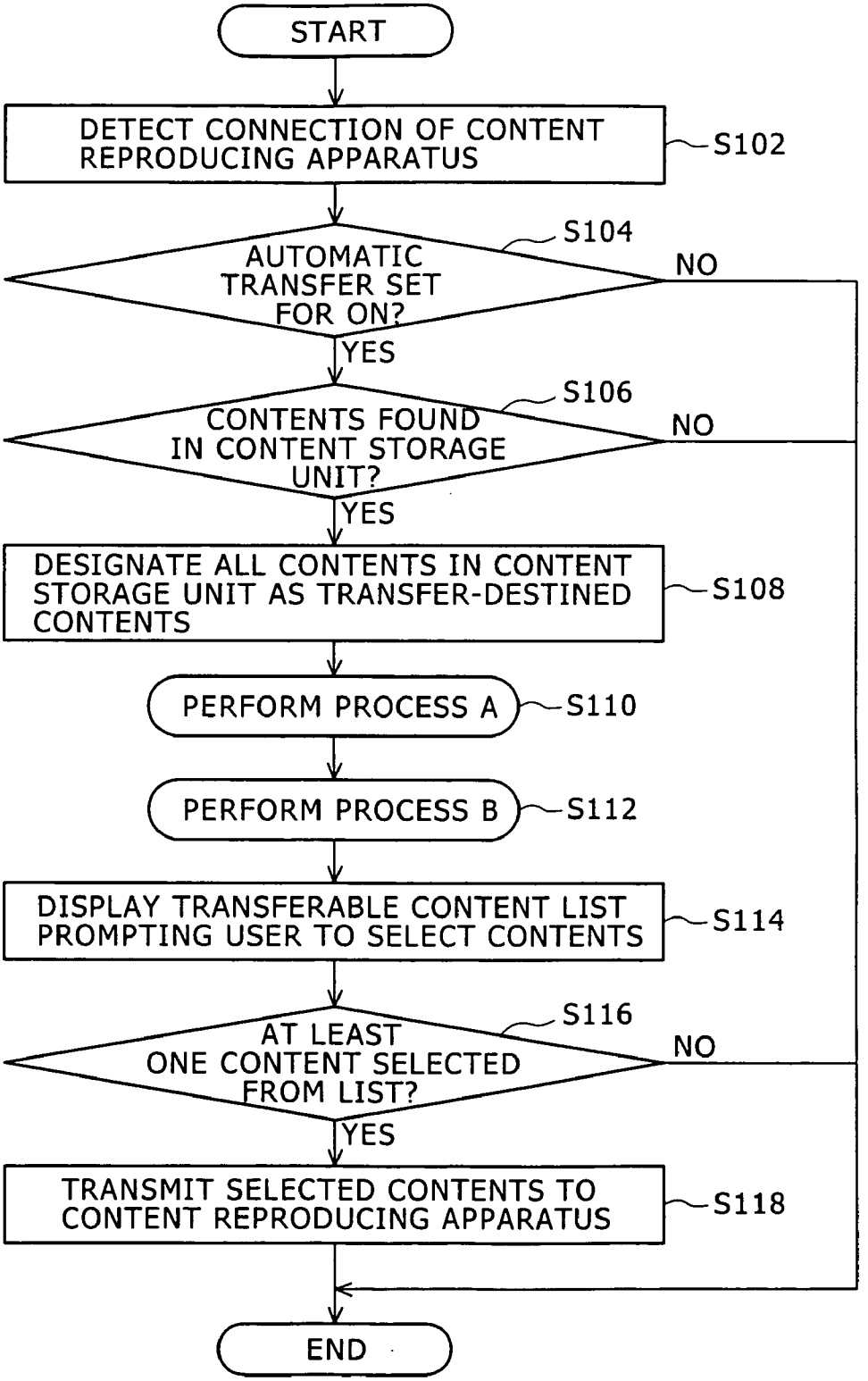

START
DETECT CONNECTION OF CONTENT REPRODUCING APPARATUS
S102
AUTOMATIC TRANSFER SET FOR ON?
S104
NO
YES
CONTENTS FOUND IN CONTENT STORAGE UNIT?
S106
NO
YES
DESIGNATE ALL CONTENTS IN CONTENT STORAGE UNIT AS TRANSFER-DESTINED CONTENTS
S108
PERFORM PROCESS A
S110
PERFORM PROCESS B
S112
DISPLAY TRANSFERABLE CONTENT LIST PROMPTING USER TO SELECT CONTENTS
S114
AT LEAST ONE CONTENT SELECTED FROM LIST?
S116
NO
YES
TRANSMIT SELECTED CONTENTS TO CONTENT REPRODUCING APPARATUS
S118
END

FIG. 10

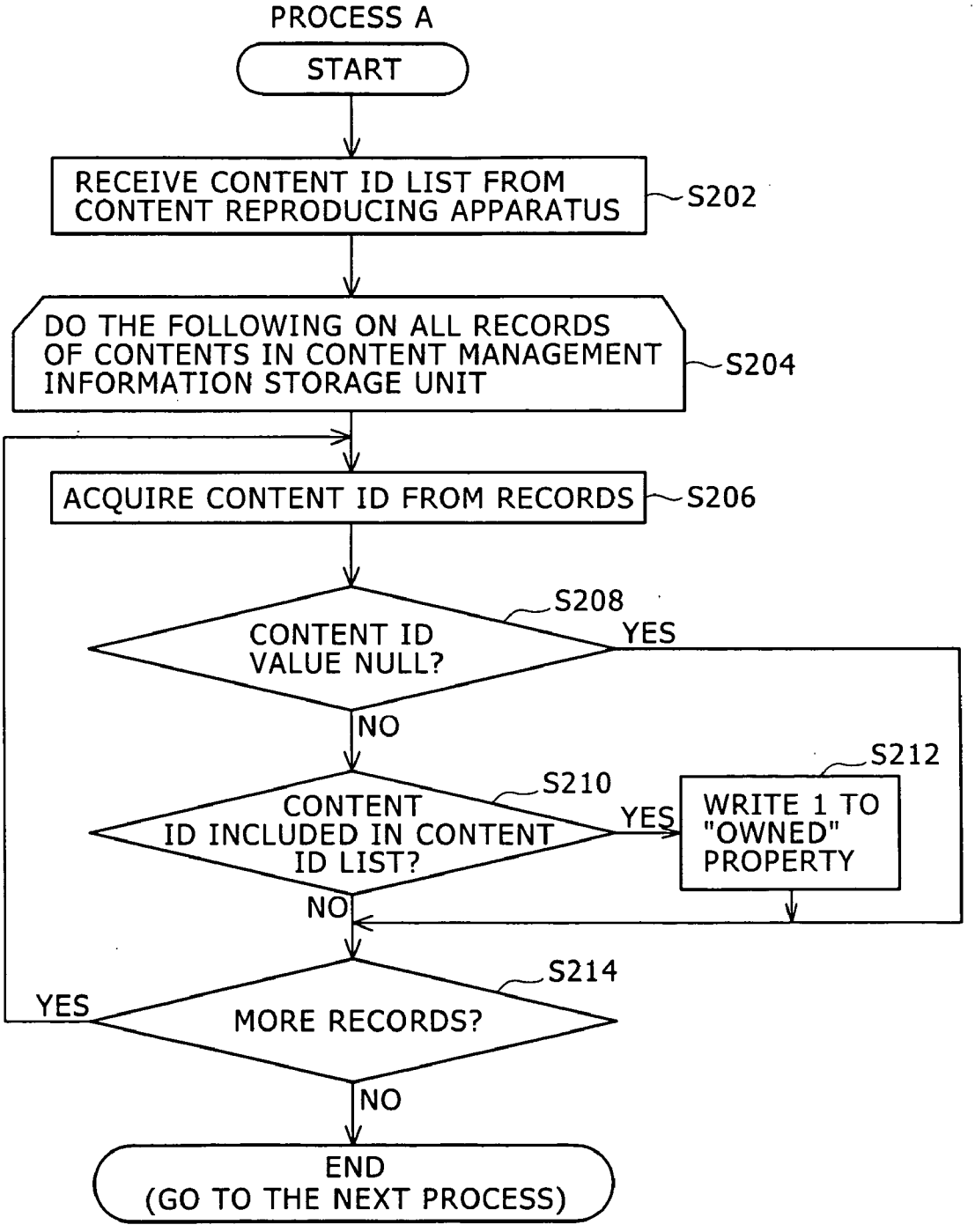

PROCESS A
START
RECEIVE CONTENT ID LIST FROM CONTENT REPRODUCING APPARATUS
S202
DO THE FOLLOWING ON ALL RECORDS OF CONTENTS IN CONTENT MANAGEMENT INFORMATION STORAGE UNIT
S204
ACQUIRE CONTENT ID FROM RECORDS
S206
CONTENT ID VALUE NULL?
S208
YES
NO
CONTENT ID INCLUDED IN CONTENT ID LIST?
S210
YES
WRITE 1 TO "OWNED" PROPERTY
S212
NO
MORE RECORDS?
S214
YES
NO
END (GO TO THE NEXT PROCESS)

FIG. 11

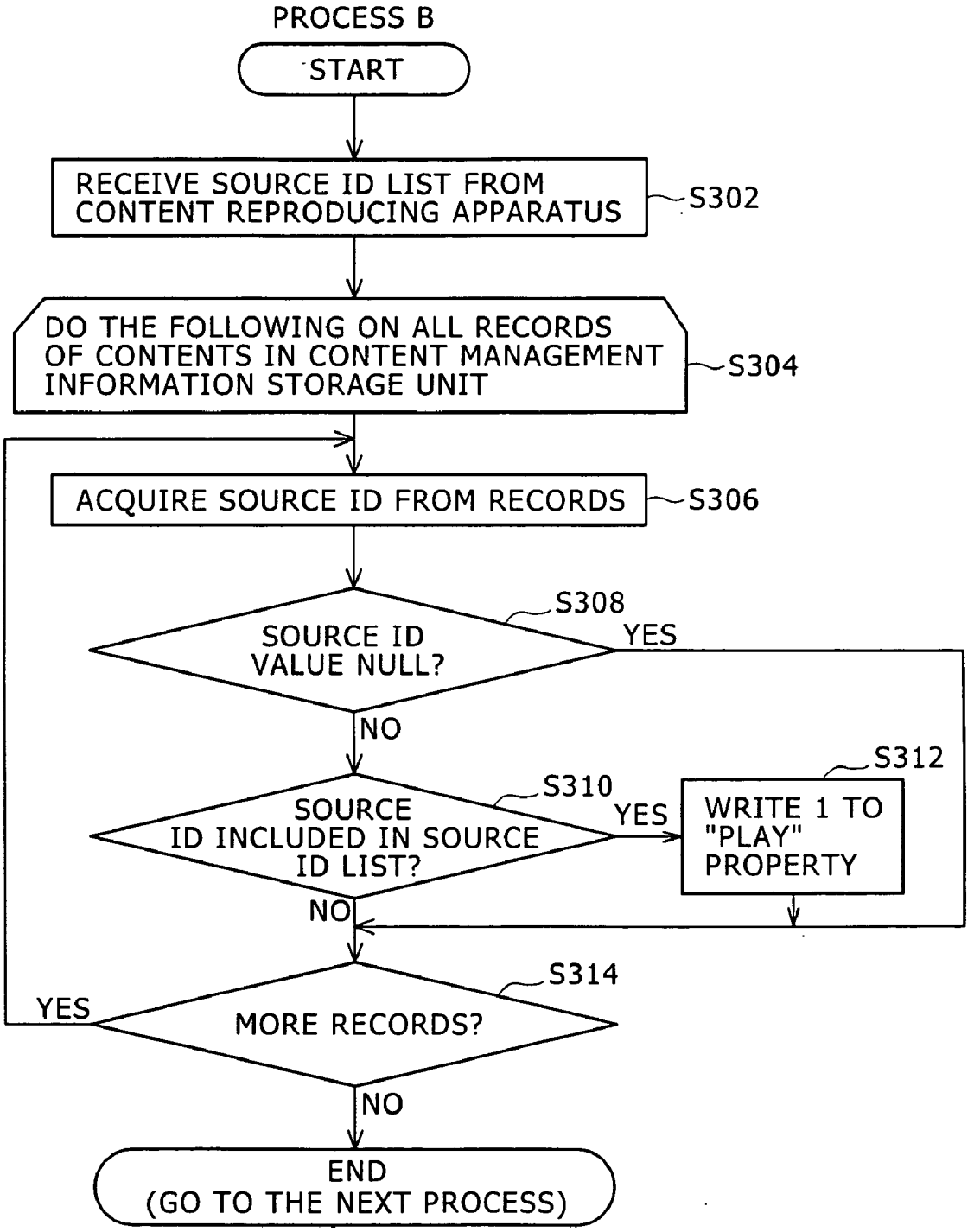

PROCESS B
START
RECEIVE SOURCE ID LIST FROM CONTENT REPRODUCING APPARATUS
S302
DO THE FOLLOWING ON ALL RECORDS OF CONTENTS IN CONTENT MANAGEMENT INFORMATION STORAGE UNIT
S304
ACQUIRE SOURCE ID FROM RECORDS
S306
SOURCE ID VALUE NULL?
S308
YES
NO
SOURCE ID INCLUDED IN SOURCE ID LIST?
S310
YES
WRITE 1 TO "PLAY" PROPERTY
S312
NO
MORE RECORDS?
S314
YES
NO
END (GO TO THE NEXT PROCESS)

FIG. 12

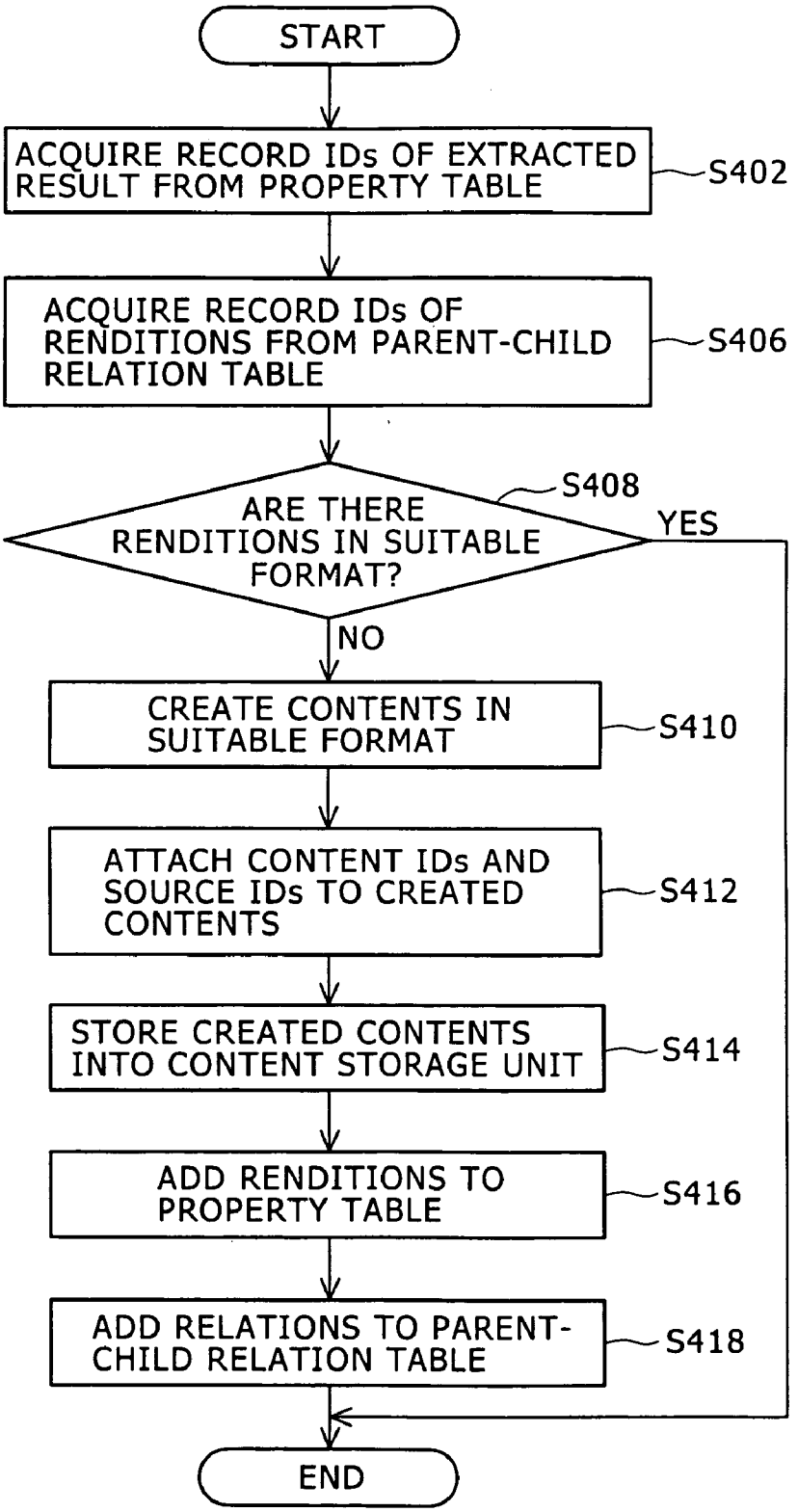

START
ACQUIRE RECORD IDs OF EXTRACTED RESULT FROM PROPERTY TABLE
S402
ACQUIRE RECORD IDs OF RENDITIONS FROM PARENT-CHILD RELATION TABLE
S406
ARE THERE RENDITIONS IN SUITABLE FORMAT?
S408
YES
NO
CREATE CONTENTS IN SUITABLE FORMAT
S410
ATTACH CONTENT IDs AND SOURCE IDs TO CREATED CONTENTS
S412
STORE CREATED CONTENTS INTO CONTENT STORAGE UNIT
S414
ADD RENDITIONS TO PROPERTY TABLE
S416
ADD RELATIONS TO PARENT-CHILD RELATION TABLE
S418
END

FIG. 13A

402

ALBUM WITH ALL OF ITS CONTENTS TRANSFERRED BUT NOT REPRODUCIBLE

316 318

ID	...	CONTENT ID	SOURCE ID	OWNED	PLAY
30	...	...	...	0	0
31	...	...	...	0	0
32	...	...	...	0	0
33	...	...	...	0	0
34	...	...	...	0	0
35	...	...	...	0	0

FIG. 13B

404

ALBUM WITH ALL OF ITS CONTENTS TRANSFERRED

ID	...	CONTENT ID	SOURCE ID	OWNED	PLAY
2	...	...	...	1	1
3	...	...	...	1	1
4	...	...	...	1	1
5	...	...	...	1	1
6	...	...	...	1	1
7	...	...	...	1	1

FIG. 13C

406

ALBUM THAT INCLUDES TRANSFERABLE CONTENTS

ID	...	CONTENT ID	SOURCE ID	OWNED	PLAY
10	...	...	...	1	1
11	...	...	...	1	1
12	...	...	...	1	1
13	...	...	...	1	1
14	...	...	...	0	1
15	...	...	...	0	1

FIG. 14

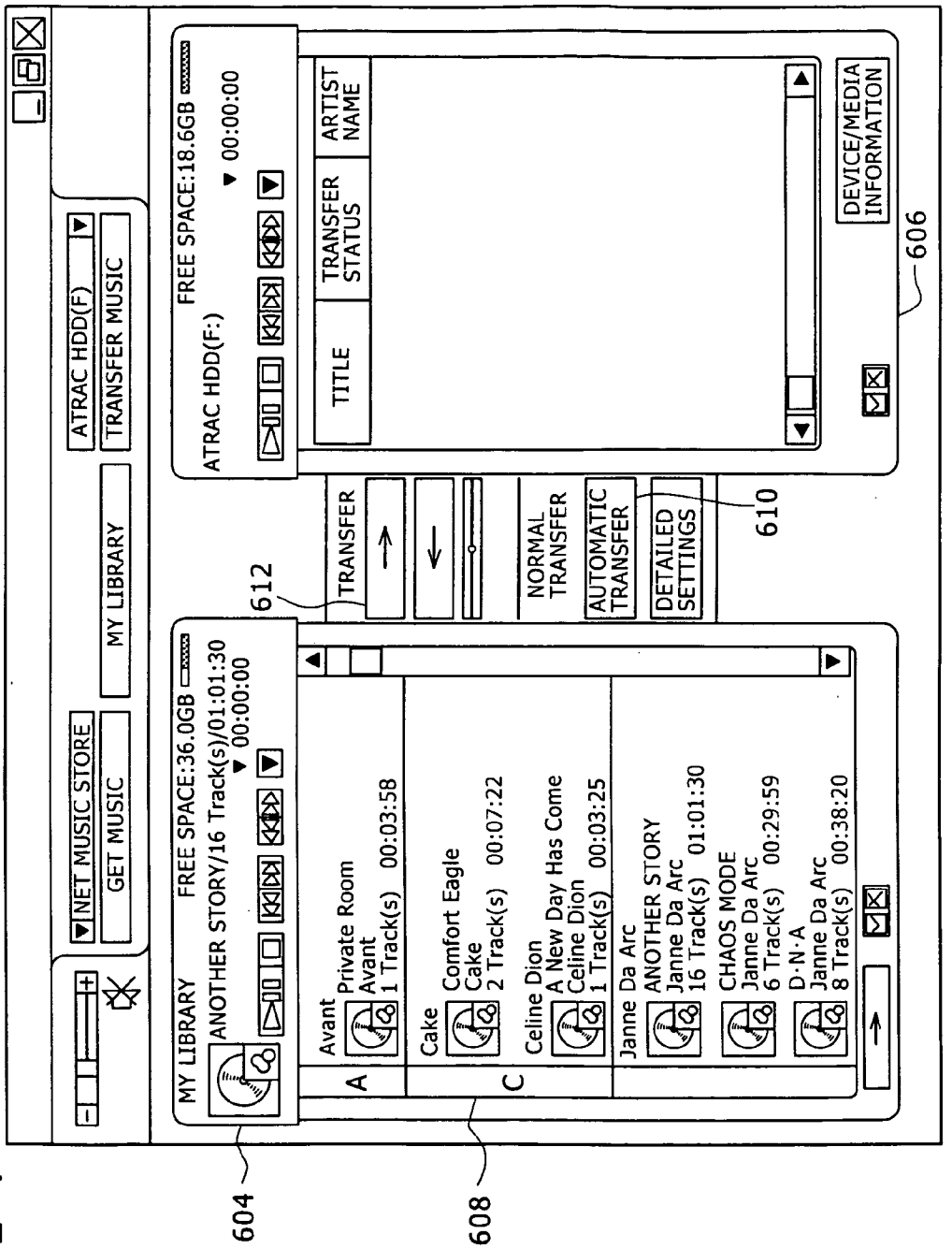

602
NET MUSIC STORE
GET MUSIC
MY LIBRARY
ATRAC HDD(F)
TRANSFER MUSIC
MY LIBRARY
ANOTHER STORY/16 Track(s)/01:01:30
00:00:00
FREE SPACE:36.0GB
604
A
Avant
Private Room
Avant
1 Track(s) 00:03:58
C
Cake
Comfort Eagle
Cake
2 Track(s) 00:07:22
Celine Dion
A New Day Has Come
Celine Dion
1 Track(s) 00:03:25
Janne Da Arc
ANOTHER STORY
Janne Da Arc
16 Track(s) 01:01:30
CHAOS MODE
Janne Da Arc
6 Track(s) 00:29:59
D·N·A
Janne Da Arc
8 Track(s) 00:38:20
608
612
TRANSFER
NORMAL TRANSFER
AUTOMATIC TRANSFER
DETAILED SETTINGS
610
ATRAC HDD(F:)
FREE SPACE:18.6GB
00:00:00
TITLE
TRANSFER STATUS
ARTIST NAME
DEVICE/MEDIA INFORMATION
606

FIG. 15

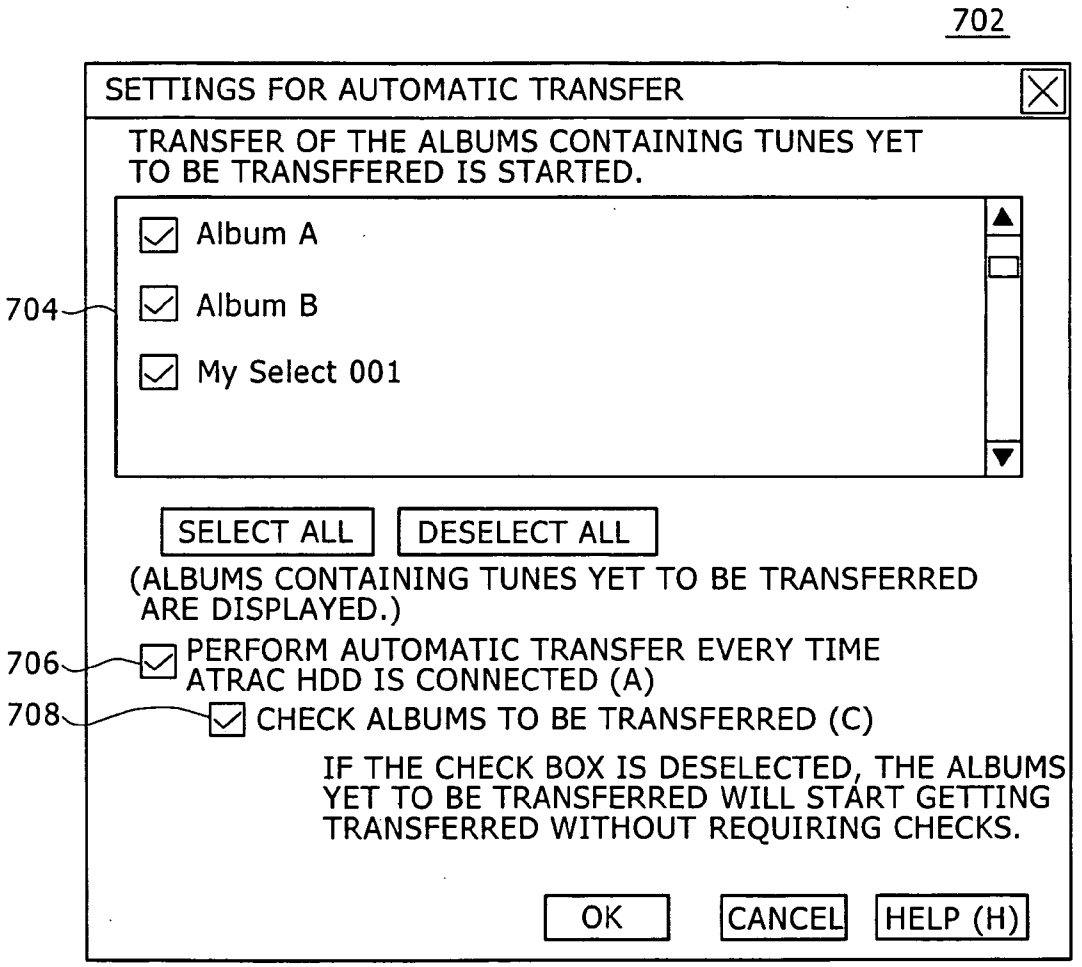

702
SETTINGS FOR AUTOMATIC TRANSFER
TRANSFER OF THE ALBUMS CONTAINING TUNES YET TO BE TRANSFFERED IS STARTED.
Album A
Album B
My Select 001
704
SELECT ALL
DESELECT ALL
(ALBUMS CONTAINING TUNES YET TO BE TRANSFERRED ARE DISPLAYED.)
706
PERFORM AUTOMATIC TRANSFER EVERY TIME ATRAC HDD IS CONNECTED (A)
708
CHECK ALBUMS TO BE TRANSFERRED (C)
IF THE CHECK BOX IS DESELECTED, THE ALBUMS YET TO BE TRANSFERRED WILL START GETTING TRANSFERRED WITHOUT REQUIRING CHECKS.
OK
CANCEL
HELP (H)

FIG. 16

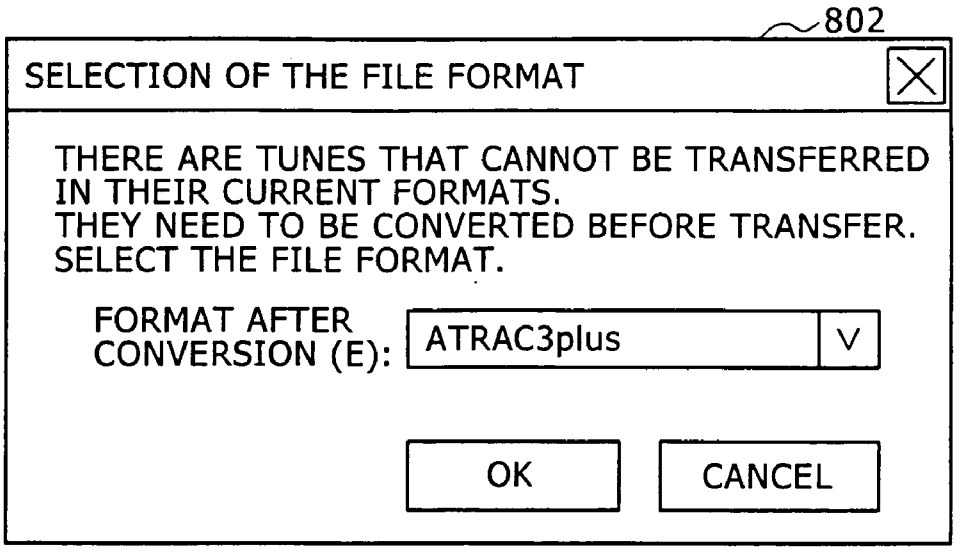
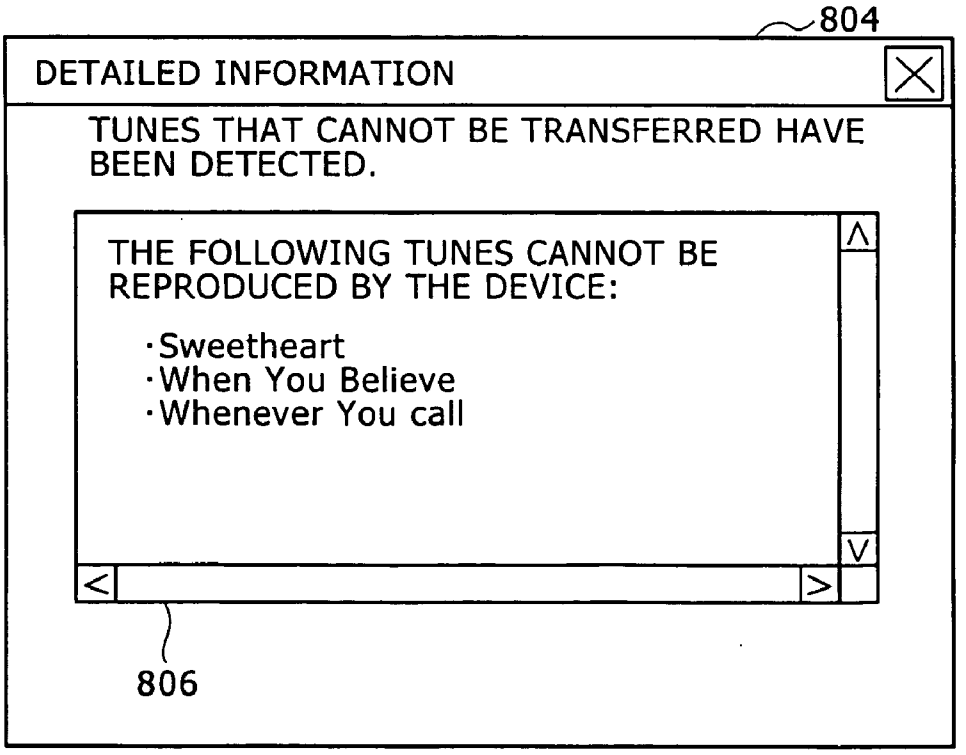

802
SELECTION OF THE FILE FORMAT
THERE ARE TUNES THAT CANNOT BE TRANSFERRED IN THEIR CURRENT FORMATS.
THEY NEED TO BE CONVERTED BEFORE TRANSFER.
SELECT THE FILE FORMAT.
FORMAT AFTER CONVERSION (E):
ATRAC3plus
OK
CANCEL

FIG. 17


804
DETAILED INFORMATION
TUNES THAT CANNOT BE TRANSFERRED HAVE BEEN DETECTED.
THE FOLLOWING TUNES CANNOT BE REPRODUCED BY THE DEVICE:
·Sweetheart
·When You Believe
·Whenever You call
806

CONTENT TRANSFERRING APPARATUS, CONTENT TRANSFERRING METHOD, AND COMPUTER PROGRAM

CROSS REFERENCE TO RELATED APPLICATION

[0001] The present invention contains subject matter related to Japanese Patent Application No. JP 2004-183777 filed in the Japanese Patent Office on Jun. 22, 2004, the entire contents of which being incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] The present invention relates to a content transferring apparatus, a content transferring method, and a computer program.

[0003] In recent years, information processing apparatuses such as PCs and portable devices with mass storage capabilities including hard disk drives have come into general use. Many users keep and manage large quantities of contents such as music and image data in the storage means of their information processing apparatus. These kinds of data are typically retained as digital data in compressed format such as MP3 or ATRAC. The data may be controlled by cryptography process as needed.

[0004] Today, it is common practice for the user to download music contents from music distribution servers connected to a network, such as EMD (Electronic Music Distribution) servers, store the downloaded contents in the storage units of their PCs, and get the stored data transferred to their content reproduction devices such as portable devices (PD) whereby transferred contents are reproduced and enjoyed.

[0005] There are a number of so-called jukebox applications for managing and reproducing contents and for controlling data transfer to external equipment such as portable devices (PD). The typical jukebox applications include SonicStage (trademark), SonicStage Simple Burner (trademark), MGIQLIP (trademark), Windows Media Player (trademark), Real Player (trademark), and iTunes (trademark). Each of these application programs is capable of downloading EMD contents and transferring the downloaded music data from the storage units of PCs to devices or media connected to the PCs.

[0006] To transfer music data from the storage unit of a PC to a portable device or a medium connected to the PC requires first selecting the contents to be transferred.

[0007] Hard disk (HD) drives used illustratively as a storage unit of the PC are noted for their large storage capacities that have been rapidly implemented in recent years. Other storage capabilities available with portable devices (PD) have also progressed significantly in capacity. The advent of such mass storage media is popularizing the practice of extracting not one but a large number of tunes from their sources and transferring the extracted tunes between devices or between a device and media.

[0008] Illustratively, iTunes of Apple Computer, Inc., one of the above-mentioned jukebox applications, has a function called Auto-Synch that works in conjunction with iPod, a portable device (PD) marketed by the same company. This function works as follows: when music data is added anew to the content database (i.e., hard disk) of the PC as EMD contents downloaded from their sources or ripped from CDs, the contents held by the PC are compared with the music data in iPod. The tunes found on the hard disk of the PC but not contained in iPod are transferred to the portable device so that the music data between the two devices are synchronized. Auto-Sync thus makes it possible automatically to transfer music data from the hard disk (HD) of the PC to the portable device iPod. Descriptions of this feature are found illustratively at http://www.apple.co.jp/ipod/ (http://www.apple.com/ipod/) and at http://www.apple.co.jp/ipod/autosync.html (http://www.apple.com/ipod/autosync.html).

SUMMARY OF THE INVENTION

[0009] However, if contents are transferred from the storage unit of a PC to the content reproducing apparatus such as a portable device as outlined above, then the contents not allowed to be reproduced by the content reproducing apparatus under copyright will also be transferred to the apparatus for unauthorized reproduction.

[0010] The present invention has been made in view of the above circumstances and provides a content transferring apparatus, a content transferring method, and a computer program capable of transferring between devices only the contents allowed to be reproduced under copyright.

[0011] According to one embodiment of the present invention, there is provided a content transferring apparatus including: a source ID list reception unit for receiving a source ID list from a content reproducing apparatus capable of reproducing contents furnished with source IDs included in the source ID list; a first extraction unit for extracting from either one or a plurality of transfer-destined contents a content furnished with a source ID included in the source ID list; and a content transmission unit for transmitting the content extracted by the first extraction unit to the content reproducing apparatus.

[0012] In the content transferring apparatus as embodied above, a source ID list is received from the content reproducing apparatus by the source ID list reception unit. The contents furnished with source IDs included in the source ID list are extracted from transfer-destined contents by the first extraction unit. The extracted contents are transmitted to the content reproducing apparatus by the content transmission unit.

[0013] The source ID is an ID attached to each content for copyright management over contents. The content reproducing apparatus retains in its storage area a source ID list including one or a plurality of source IDs. When contents to be reproduced are furnished with source IDs and are subject to copyright management, the content reproducing apparatus can reproduce the contents provided that their source IDs are included in the source ID list held by the apparatus. If the source IDs attached to the contents of interest are not included in the source ID list of the content reproducing apparatus, the apparatus cannot reproduce the contents. It follows that when the content transferring apparatus extracts the contents furnished with the source IDs included in the source ID list received from the content reproducing apparatus, the content transferring apparatus can transmit only the contents that are allowed to be reproduced by the content reproducing apparatus under copyright.

[0014] In one preferred structure according to the invention, the content transferring apparatus may further include: a content ID list reception unit for receiving from the content reproducing apparatus a content ID list including content IDs attached to the contents held by the content reproducing apparatus; and a second extraction unit for extracting from either one or a plurality of transfer-destined contents a content furnished with a content ID not included in the content ID list; wherein the content transmission unit may transmit to the content reproducing apparatus the contents extracted by the first and the second extraction units. The content ID is an ID attached uniquely to each content. With this structure, the second extraction unit of the content transferring apparatus may extract the contents furnished with the content IDs not found in the content ID list that includes the content IDs attached to the contents owned by the content reproducing apparatus. That is, the second extraction unit may extract the contents not owned by the content reproducing apparatus. Thus only the contents extracted by the first and the second extraction units, i.e., contents not owned by the content reproducing apparatus and reproducible by that apparatus under copyright, can be transmitted to the apparatus.

[0015] In another preferred structure according to the invention, the first extraction unit may extract the contents furnished with source IDs included in the source ID list from the contents extracted by the second extraction unit.

[0016] In a further preferred structure according to the invention, the content transferring apparatus may further include a format conversion unit which, if the contents extracted by the first extraction unit are in a format not reproducible by the content reproducing apparatus to which the extracted contents have been transmitted, then converts the extracted contents into a format reproducible by the content reproducing apparatus; wherein the content transmission unit may transmit the newly formatted contents to the content reproducing apparatus. With this structure, the content transferring apparatus can transmit the contents to the content reproducing apparatus in a format immediately reproducible by that apparatus.

[0017] In an even further preferred structure according to the invention, the newly formatted contents may be stored into a content storage unit in association with the previously formatted contents. With this structure, the content transferring apparatus can retain both the newly formatted and the previously formatted contents in the content storage unit. When the content transferring apparatus later transmits the contents to the content reproducing apparatus, there is no need to again format the contents; the newly formatted contents held in the content storage unit need only be retrieved for transmission.

[0018] In a still further preferred structure according to the invention, the content transferring apparatus may further include: a content storage unit for storing a plurality of contents; and a transfer-destined content designation unit for designating either one or a plurality of contents as the transfer-destined contents from among the plurality of contents stored in the content storage unit.

[0019] In a yet further preferred structure according to the invention, the transfer-destined content designation unit may designate in a suitably timed manner all contents stored in the content storage unit as the transfer-destined contents. The timing for designating the contents may illustratively be when the content transferring apparatus detects connection of the content reproducing apparatus to the content transferring apparatus, when the user designates desired contents through a GUI display, or when a predetermined time of day is reached every week (e.g., at midnight every Monday). With this structure, the content transferring apparatus may extract, from all contents held in the content storage unit, those contents that can be reproduced by the content reproducing apparatus under copyright, and may transmit the contents. It is thus possible not only for the user to manually select desired contents for transmission but also for the content transferring apparatus to automatically transmit contents to the content reproducing apparatus. Upon such automatic transmission, only the contents reproducible by the content reproducing apparatus under copyright can be transmitted to that apparatus.

[0020] In another preferred structure according to the invention, the transfer-destined content designation unit may designate user-designated contents as the transfer-destined contents to be transferred from the content storage unit. With this structure, user-designated contents will not be transmitted if they are not allowed to be reproduced by the content reproducing apparatus under copyright.

[0021] In a further preferred structure according to the invention, the content transferring apparatus may further include a nontransferable content list display unit for displaying a nontransferable content list of the contents which are designated as the transfer-destined contents by the transfer-destined content designation unit and which have not been extracted by the first extraction unit. With this structure, the user can verify those of the user-designated contents which have not been transferred to the content reproducing apparatus.

[0022] In an even further preferred structure according to the invention, the content storage unit may store the plurality of contents in either one or a plurality of groups, the content transferring apparatus further including a transferable content list display unit for displaying a transferable content list of at least one of the groups including at least one content extracted by the first extraction unit.

[0023] In a still further preferred structure according to the invention, the content transferring apparatus may further include a transferable content list display unit for displaying a transferable content list of the contents extracted by the first extraction unit.

[0024] According to another embodiment of the present invention, there is provided a computer program to be read into a computer so that the computer executing the program will function as the above-described content transferring apparatus.

[0025] According to a further embodiment of the present invention, there is provided a content transferring method implemented through the use of the above-described content transferring apparatus.

[0026] As outlined above, the present invention provides a content transferring apparatus, a content transferring method, and a computer program for transferring to a content reproducing apparatus only the contents that are reproducible by the reproducing apparatus under copyright.

[0027] Other objects, features and advantages of the present invention will become more apparent in the following specification and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0028] **FIG. 1** is an explanatory view showing an overall configuration of a content transfer system according to the present invention;

[0029] **FIG. 2** is an explanatory view showing how copyright management is practiced by the inventive system;

[0030] **FIG. 3** is another explanatory view showing how copyright management is practiced by the inventive system;

[0031] **FIG. 4** is a block diagram showing a hardware structure of a content transferring apparatus as part of the inventive system;

[0032] **FIG. 5** is a block diagram showing a functional structure of the content transferring apparatus in the inventive system;

[0033] **FIG. 6** is an explanatory view showing a property table in a content management database used by the inventive system;

[0034] **FIG. 7** is an explanatory view showing a parent-child relation table in the content management table;

[0035] **FIG. 8** is an explanatory view showing how contents are arranged into groups by the inventive system;

[0036] **FIG. 9** is a flowchart of steps constituting a content transferring process carried out by the inventive system;

[0037] **FIG. 10** is a flowchart of steps constituting a content extracting process carried out by the inventive system on the basis of content IDs;

[0038] **FIG. 11** is a flowchart of steps constituting another content extracting process carried out by the inventive on the basis of content IDs;

[0039] **FIG. 12** is a flowchart of steps constituting a format converting process performed on contents by the inventive system;

[0040] **FIGS. 13A through 13C** are explanatory views showing typical records of contents included in transferable and nontransferable albums;

[0041] **FIG. 14** is a schematic view of a screen layout showing an initial screen displayed on the content transferring apparatus in the inventive system;

[0042] **FIG. 15** is a schematic view of a screen layout showing an automatic transfer setting screen displayed on the content transferring apparatus in the inventive system;

[0043] **FIG. 16** is a schematic view of a screen layout showing a file format selection screen displayed on the content transferring apparatus in the inventive system; and

[0044] **FIG. 17** is a schematic view of a screen layout showing a detailed information screen displayed on the content transferring apparatus in the inventive system.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0045] Preferred embodiments of the present invention will now be described with reference to the accompanying drawings. In the ensuing specification and in the accompanying drawings, like reference numerals designate parts or components that are substantially the same in function, and their descriptions will be omitted where redundant.

[0046] The contents destined for transfer by an embodiment of the invention are explained first. These contents are of all kinds: audio contents such as music, lectures and radio programs; video contents made up of moving and still mages constituting movies, TV programs, video programs, photos and drawings; electronic books, games, and software. Content data is illustratively digital data making up the above-mentioned kinds of contents including video data, audio data, electronic book data, computerized game data, and software data. In the specification that follows, contents will be discussed illustratively in the form of music contents (MP3, etc.), particularly the tunes ripped or self-recorded by use of recording devices, and music contents distributed by content servers. However, these forms of contents are only examples and will not be limitative of the invention.

[0047] What follows is a description of a content transferring apparatus **102** for transferring music contents as an embodiment of the present invention. An overall configuration of a content transfer system **100** according to the invention will be explained first by referring to **FIG. 1**. The content transfer system **100** includes the content transferring apparatus **102**, a content reproducing apparatus **104**, content servers **106***a* and **106***b*, and a communication network **108**.

[0048] The content transferring apparatus **102** is an information processing apparatus capable of transferring music contents (or simply called contents hereunder) to the content reproducing apparatus **104**. The content transferring apparatus **102** acquires content data by downloading it from the content server **106***a* or **106***b*. Content data may alternatively be obtained by ripping it from CDs (compact disks) or other recording media. As other alternatives, the content transferring apparatus **102** may receive content data from another information processing apparatus having downloaded or ripped it, or may read it from CDs or other external recording media carrying such content data.

[0049] Having acquired content data as described, the content transferring apparatus **102** stores it into a content storage unit (to be described later). Information about the contents held in the content storage unit is managed by a content management database (to be discussed later). The content transferring apparatus **102** may include other functions such as a content reproduction function and a content recording function in addition to its content transfer function.

[0050] Illustratively, the content transferring apparatus **102** may be any one of such diverse devices as computer equipment (laptop or desk-top type) including personal computers (PC), PDAs (personal digital assistants), portable video player/recorders, portable audio player/recorders such as MP3 players and IC player/recorders, imaging devices including digital cameras and video recorders, home-use game machines, VTRs; CD, MD or DVD player/recorders; radio sets, mobile phones, PHSs, and home information appliances.

[0051] The content reproducing apparatus **104** is an information processing apparatus for having music contents transferred from the content transferring apparatus **102** and

reproducing the transferred content data. Illustratively, the content reproducing apparatus **104** may be connected to the content transferring apparatus **102** in a locally wired manner using a USB (Universal Serial Bus) cable or a SCSI (Small Computer System Interface) cable. Alternatively, the two apparatuses may be connected wirelessly or via the communication network **108**. The content reproducing apparatus **104** may be any one of such devices as portable devices (PD) for reproducing music contents, PCs, mobile phones, home information appliances, and various music players.

[**0052**] The content servers **106***a*, **106***b*, etc., (simply called the content server **106** hereunder) act as music distribution servers such as EMD (electronic music distribution) servers.

[**0053**] The communication network **108** is a network that connects the content server **106** with the content transferring apparatus **102** for two-way communication. The communication network **108** may be a wired or wireless network constituted illustratively by public networks such as the Internet, telephone line networks, or satellite communication networks; or by dedicated line networks including WAN, LAN, and IP-VAN.

[**0054**] The content transfer system **100** has been outlined above. Described below with reference to **FIG. 2** is a typical method by which the content transfer system **100** of this invention manages the copyrights of contents.

[**0055**] The content transfer system **100** adopts a copyright managing method for managing contents per content data provider (more specifically, content data owner) or per device that stores content data. According to this method, the content reproducing apparatus **104** that has acquired content data (i.e., to which the content data has been transmitted) is allowed or not allowed to reproduce the data depending on the corresponding content data provider. More specifically, the reproduction of content data is controlled on the basis of a source ID assigned uniquely to each of the content data providers involved. This copyright managing method will be described below in more detail with reference to **FIGS. 2 and 3**.

[**0056**] **FIG. 2** is an explanatory view showing how copyright management is practiced for reproduction control using source IDs. Content processing devices **10-1**, **10-2** and **10-3** are shown here to record and reproduce content data. The devices **10-1**, **10-2** and **10-3** are uniquely assigned a source ID**1**, a source ID**2** and a source ID**3** respectively. When contents are created anew by any of the devices **10-1**, **10-2** and **10-3**, the created contents are furnished with the corresponding source ID**1**, source ID**2** or source ID**3** before they are recorded.

[**0057**] The content processing devices **10-1**, **10-2** and **10-3** have source ID lists L**1**, L**2** and L**3** respectively. The source ID list L**1** for the content processing device **10-1** and the source ID list L**2** for the content processing device **10-2** each include the source ID**1** and source ID**2** corresponding to the devices **10-1** and **10-2** respectively. On the other hand, the source ID list L**3** for the content processing device **10-3** includes only the source ID**3** corresponding to the device **10-3** itself and excludes the source ID**1** and source ID**2**.

[**0058**] In the case above, the source ID**1** is attached to content data C**1** created by the content processing device **10-1**. The content data C**1** furnished with the source ID**1** can be reproduced by the content processing device **10-2** because the source ID list L**2** includes the source ID**1**. However, the content data C**1** cannot be reproduced by the content processing device **10-3** because the source ID list L**3** does not include the source ID**1**. Content data C**3** created by the content processing device **10-3** and furnished with the source ID**3** cannot be reproduced by the content processing device **10-1** or **10-2** because the source ID**3** is not included in the source ID list L**1** or L**2**.

[**0059**] How the copyright managing method above is adopted by the content transfer system **100** of this invention will now be described with reference to **FIG. 3**. The content transferring apparatus **102** is illustratively given ID**1** as its unique source ID. The content data C**1** recorded by the content transferring apparatus **102** is furnished with ID**1** assigned to the apparatus **102** as the source ID. The content data recorded by the content transferring apparatus **102** illustratively includes content data downloaded by the content transferring apparatus **102** from the content server **106**, content data ripped by the apparatus **102** from music CDs, and content data obtained by digitizing the analog music data recorded by the apparatus **102**.

[**0060**] Alternatively, the content transferring apparatus **102** may acquire content data from another information processing apparatus having downloaded or ripped the data as mentioned above. Such content data is furnished with a source ID assigned to the other information processing apparatus that has performed the downloading or the ripping. Suppose now that content data is furnished with the source ID**2**. The content transferring apparatus **102**, as shown in **FIG. 3**, retains the source ID list L**1** including ID**1** that is the source ID of the apparatus **102**, and ID**2** that is the source ID assigned to the other information processing apparatus. In this case, the content transferring apparatus **102** can reproduce both the content data furnished with the source ID**1** and the content data provided with the source ID**2** because the apparatus **102** has the source ID list including both the source ID**1** and the source ID**2**.

[**0061**] A content reproducing apparatus **104***a* retains in its storage unit the source ID list L**2** including the source ID**1**, and a content reproducing apparatus **104***b* holds a source ID list including the source ID**2**. Thus when the content transferring apparatus **102** transmits the content data C**1** furnished with the source ID**1** to the content reproducing apparatus **104***a*, the apparatus **104***a* can reproduce the content, data C**1** because the source ID list L**2** includes the source ID**1**. On the other hand, if the content transferring apparatus **102** transmits the content data C**1** furnished with the same source ID**1** to the content reproducing apparatus **104***b*, the apparatus **104***b* cannot reproduce the transferred content data C**1** because the source ID list L**3** does not include the source ID**1**.

[**0062**] When the content transferring apparatus **102** transfers the content data acquired from the other information processing apparatus to the content reproducing apparatus **104***b*, the apparatus **104***b* can reproduce the transferred content data because the source ID list L**3** includes the source ID**2**. If the content transferring apparatus **102** transfers the content data acquired from the other information processing apparatus to the content reproducing apparatus **104***a*, the apparatus **104***a* cannot reproduce the transferred content data because the source ID list L**2** does not include the source ID**2**.

[0063] The content transferring apparatus **102** is thus structured in such a manner as to transfer to the content reproducing apparatus **104** only the content data that can be reproduced by the apparatus **104**. This kind of structure for the content transferring apparatus **102** will be discussed below.

[0064] The copyright managing method adopted by the inventive content transfer system **100** has been described above. What follows is a description of how the content transferring apparatus **102** of this invention is typically structured.

[0065] The typical hardware structure of the content transferring apparatus **102** will now be described by referring to **FIG. 4**. A CPU (central processing unit) **501** is a control unit that carries out diverse processes in keeping with computer programs such as those for recording, reproducing, downloading or transferring contents under an operating system (OS).

[0066] A ROM (read only memory) **502** retains programs and operation parameters for use by the CPU **501**. A RAM (random access memory) **503** accommodates the programs used by the CPU **501** in executing its processing as well as parameters varied as needed when subjected to the process execution. These memories are interconnected by a host bus **504** constituted illustratively by a CPU bus.

[0067] The host bus **504** is connected via a bridge **505** to an external bus **506** such as a PCI (Peripheral Component Interconnect/Interface) bus.

[0068] A keyboard **508** is operated by a user inputting commands to the CPU **501**. A pointing device **509** is operated by the user pointing to or selecting items on the screen of a display unit **510**. The display unit **510** may be composed of a liquid crystal display (LCD) or cathode ray tube (CRT) displaying diverse kinds of information in texts or images. A hard disk drive (HDD) **511** drives its hard disks inside to record and reproduce the programs executed by the CPU **501** as well as information to be operated on by the latter.

[0069] A drive **512** is loaded with a removable recording medium **521** such as a magnetic disk, an optical disk, a magneto-optical disk, or a semiconductor memory. The drive **512** reads data or programs from the loaded recording medium **521** and supplies what has been read to the RAM **503** connected by way of an interface **507**, external bus **506**, bridge **505**, and host bus **504**.

[0070] A connection port **514** connects to an externally connectable device **522**, such as a content reproducing apparatus **104**, through the use of USB or IEEE1394 connective parts or the like. The connection port **514** is connected to the CPU **501** and other components via the interface **507**, external bus **506**, bridge **505**, and host bus **504**.

[0071] A communication unit **515** is connected to the communication network **108**. In operation, the communication unit **515** carries out processes involved with the transmission of data coming from the CPU **501**, HDD **511**, etc., or with the reception of data coming from servers.

[0072] A functional structure of the content transferring apparatus **102** will now be described by referring to **FIG. 5**. The content transferring apparatus **102** illustratively includes a PD plug-in **202**, a content transmission unit **204**, an outgoing content acquisition unit **210**, a format conversion unit **218**, a source ID list reception unit **206**, a content ID list reception unit **208**, a first extraction unit **212**, a second extraction unit **214**, a content storage unit **220**, a content management database **222**, a GUI **224**, a transfer-destined content designation unit **216**, a transferable content list display unit **226**, a nontransferable content list display unit **228**, a PC plug-in **230**, and a content registration unit **232**.

[0073] The content registration unit **232** acquires content data through the PC plug-in **230** and stores the acquired data into the content storage unit **220**. Furthermore, the content registration unit **232** is capable of registering in the content management database **222** information about the content data placed into the content storage unit **220**, e.g., information representing file formats of the content data as well as file names (i.e., storage locations of the content data).

[0074] If the acquired content data is found carrying a content ID and a source ID, the content registration unit **232** acquires the attached content ID and source ID. The acquired content ID and source ID are registered in the content management database **222** as information about the content data.

[0075] The source ID is an ID assigned to each content data provider as mentioned above. The content ID is a unique ID attached to each content that is subject to copyright management.

[0076] If the content data acquired by the content registration unit **232** via the PC plug-in **230** is found carrying a content ID and a source ID, that means the content data has already been subjected to copyright management. Illustratively, such content data may have been ripped or downloaded by another information processing apparatus and then furnished with the source ID of that apparatus; or the content data may have been given a unique content ID by a copyright management server that provides overall copyright management.

[0077] If the content data acquired by the content registration unit **232** via the PC plug-in **230** is not furnished with a content ID and a source ID, that means the content data has yet to be subjected to copyright management. Illustratively, such content data may have been downloaded from free-of-charge websites. Alternatively, such ID-deprived content data may be content data to which the content transferring apparatus **102** attaches a content ID and a source ID in order to subject the data to copyright management. More specifically, such content data may have been acquired by the content transferring apparatus **102** having ripped or downloaded the data.

[0078] The content registration unit **232** is capable of adding a content ID and a source ID to content data which is subjected to copyright management. Specifically, when the content transferring apparatus **102** has downloaded content data from the content server **106** or has ripped the data from a music CD, the content registration unit **232** furnishes the content data in question with a source ID unique to the unit **232** as well as with a content ID. That content ID attached uniquely to the content data of interest is acquired illustratively by querying the copyright management server. The content registration unit **232** furnishes content data with

its source ID and a content ID illustratively when the content data in question is acquired or when the content data is set to be transferred.

[0079] How the content management database **222** is structured will now be described with reference to **FIGS. 6 and 7**. The content management database **222** illustratively contains a property table **252 (FIG. 6)** and a parent-child relation table **254 (FIG. 7)**. The property table **252** includes content-related information such as content data locations in the content storage unit **220** as well as grouping information about the content data. The parent-child relation table **254** defines the relations between the records making up the property table **252**.

[0080] The property table **252** illustratively includes record ID fields **302**, type fields **304**, title fields **306**, codec fields **308**, file name fields **310**, content ID fields **312**, and source ID fields **314**. The record IDs **302** are specific to the database.

[0081] Each type field **304** carries grouping information about content data. As shown in **FIG. 3**, there are three content data types: a package, a content, and a rendition. A package includes a plurality of contents. In other words, a plurality of contents are grouped into a single package. More specifically, as shown in the title fields **306**, a plurality of music contents (tracks) are grouped into a single album.

[0082] A content is associated with a plurality of renditions. The content storage unit **220** may accommodate content data constituting one content in different file formats (MP3, WAV, etc.). A plurality of contents in the same file format corresponding to different codec types (e.g., ATRAC3Plus and ATRAC3) may also be stored in the content storage unit **220**. A rendition represents a content data version of one content.

[0083] **FIG. 8** is a simplified schematic view showing how content data is typically grouped. As illustrated, an album A (package) includes a plurality of tracks (contents). Each of the tracks includes a plurality of content data versions (renditions).

[0084] Each codec field **308** denotes codec software corresponding to the content data indicated by each rendition. For each record whose type field **304** is a content, either the codec corresponding to the original (i.e., as-acquired) content data or a "priority" codec is set. Each file name field **310** carries a name of the content data indicated by each rendition, the name being the data location of each content data version. Each record whose type field **304** is a content is given a file name representative of the original or "priority" data of the content in question, the file name being the original or priority data location of that content.

[0085] The priority data means newly converted content data that is transferred in preference to the original content data. Illustratively, suppose that the original content data is in MP3 format compatible with MPEG-1 Audio Layer-3 and that the same content is later converted by the format conversion unit, to be described later, into OpenMG format compatible with ATRAC3. In that case, the OpenMG-format content data compatible with ATRAC3, which is better suited for transfer to the content reproducing apparatus **104**, is transferred to the apparatus **104** in preference to the original content data.

[0086] Each content ID field **312** carries a content ID attached to content data which is subject to copyright management. Different versions of content data (i.e., renditions) created out of one content are furnished with the same content ID as that given to the original content data. That is because the content data versions, although different in terms of format or codec type, still constitute the same content and thus should be subject to copyright management by use of the same content ID.

[0087] Each source ID field **314** carries a source ID attached to content data which is subject to copyright management. Different versions of content data (i.e., renditions) created out of one content are furnished with the same source ID as that attached to the original content data. Because the content data versions, different in terms of format or codec type, still constitute the same content, they should be subject to copyright management by use of the same source ID, as in the case of content IDs. Content data not subject to copyright management, such as data indicated by a record ID**5**, a record ID**6** or a record ID**7** in **FIG. 6**, will not be furnished with a content ID or a source ID.

[0088] The parent-child table **254** defines the relations between the record IDs constituting the property table. A parent ID field **324** and the corresponding child ID field **326** are filled with record IDs found in the property table, the record IDs indicating that a parent-child relation exists between the stored records. The parent-child relation signifies illustratively that if the parent is a package (album), then its children are contents (tracks) included in that package, and that if the parent is a content, then its children are renditions (content data) of that content.

[0089] Parent-child relations are described below in more detail with reference to **FIGS. 6 and 7**. Illustratively, suppose that it is desired to know which album carries content data "C:¥Album-A¥Track1-2.oma" managed with a record ID**4** in the property table **252**. In that case, reference is first made to the child ID fields **326** in the parent-child relation table **254**. A search is made through the child IDs **326** for a record ID**4**. The record ID**4** is found corresponding to a child ID**4** associated with a relation ID**4**. Because the parent ID of the relation ID**4** is 2, a record ID**2** is referenced in the property table **252**, which yields a track 1. Thus the content data "C:¥Album-A¥Track1-2.oma" is found corresponding to the content "track 1."

[0090] A search is then made through the parent-child relation table **254** for any relation ID field carrying the record ID**2** in the corresponding child ID field **326**. The record ID**2** is found in the child ID field associated with a relation ID**1**. Because the parent ID of the relation ID**1** has a record ID**1**, the record ID**1** is referenced in the property table, which yields an album A. Thus the content data "C:¥Album-A¥Track1-2.oma" is found to be a tune included in the album A, following the references made to the property table **252** and parent-child relation table **254**.

[0091] As another example, suppose that it is desired to know which codec type is associated with the content data which is held in the content storage unit **220** and which corresponds to the content "track 1" managed with the record ID**2** in the property table **252**. In this case, a search is made through the parent-child relation table **254** for any relation ID field carrying the record ID**2** in the corresponding parent ID field **324**. The search yields a relation ID**3**, a

relation ID4, and a relation ID5. A reference to each of the child ID fields **326** reveals a record ID3, a record ID4 and a record ID5. Then referencing the record ID3, record ID4 and record ID5 for their codec fields **308** in the property table **252** discloses that three content data renditions associated with three codec types, ATRAC3Plus, ATRAC3, and MPEG-1 Audio Layer-3, are stored in the content storage unit **220**.

[**0092**] The content management database **222** has been discussed above. Returning now to **FIG. 5**, the description of the functional structure of the content transferring apparatus **102** is continued below.

[**0093**] Content data is stored into the content storage unit **220** in the manner discussed above. The PD plug-in **202** detects the content reproducing apparatus **104** such as a portable device (PD) when the apparatus **104** is connected to the content transferring apparatus **102**. Furthermore, the PD plug-in **202** is capable of transmitting and receiving various kinds of data such as content ID lists, source ID lists, and content data to and from the content reproducing apparatus **104**.

[**0094**] The content ID list reception unit **208** has the ability to receive a content ID list via the PD plug-in **202** from the content reproducing apparatus **104** connected to the content transferring apparatus **102**. The content ID list is a list of all content IDs attached to the content data owned by the content reproducing apparatus **102** in its storage unit. The content ID is a unique ID attached to each content. When the content ID list reception unit **208** acquires a content ID list from the content reproducing apparatus **104**, the content transferring apparatus **102** can utilize the obtained content IDs to identify the content data already owned by the connected content reproducing apparatus **104**.

[**0095**] The source ID list reception unit **206** is capable of receiving a source ID list via the PD plug-in **202** from the content reproducing apparatus **104** connected to the content transferring apparatus **102**. The source ID list is a list of one or a plurality of source IDs kept by the content reproducing apparatus **102** in its storage unit. As mentioned above, the content reproducing apparatus **104** can reproduce the content data furnished with the source IDs included in the source ID list held by the apparatus **104** itself. When the source ID list reception unit **206** acquires a source ID list from the content reproducing apparatus **104**, the content transferring apparatus **102** can utilize the obtained source IDs to identify the content data reproducible by the connected content reproducing apparatus **104**.

[**0096**] The transfer-destined content designation unit **216** has the capability to designate one or a plurality of contents as transfer-destined contents from among a plurality of contents held in the content storage unit **220**. More specifically, when the user designates desired contents through the GUI **224**, the transfer-destined content designation unit **216** illustratively checks the titles of the designated contents to identify the record IDs associated with these titles in the title fields **306** of the property table **252**. The transfer-destined content designation unit **216** then sends the identified record IDs to the first extraction unit **212** or second extraction unit **214**, whereby the contents managed with these records are designated as transfer-destined contents.

[**0097**] The transfer-destined content designation unit **216** is also capable of designating all contents held in the content storage unit **220** as transfer-destined contents in a suitably timed manner. More specifically, the transfer-destined content designation unit **216** may consecutively read all content data in properly timed fashion from the content storage unit **220** and supply the retrieved content data to the first extraction unit **212** or second extraction unit **214** as transfer-destined contents. In practice, however, successively reading all content data can take an inordinately long time. That process is avoided by the embodiment having the transfer-destined content designation unit **216** to use the content management database **222** so as to designate transfer-destined contents. Illustratively, the transfer-destined content designation unit **216** acquires in a properly timed manner the record IDs of all records whose type fields **304** carry "content" in the property table **252** of the content management database **222**. The record IDs thus obtained are sent to the first extraction unit **212** or second extraction unit **214**, whereby the contents managed with these records are designated as transfer-destined contents.

[**0098**] The suitable timing above is such as when the PD plug-in **202** detects the connection of the content reproducing apparatus **104** to the content transferring apparatus **102**, when a particular point in time designated by the user through the GUI **224** has been reached, or when a user-predetermined time of day is reached periodically (e.g., at midnight every Monday).

[**0099**] The second extraction unit **214** has the ability to acquire a content ID list from the content ID list reception unit **208** and to extract from transfer-destined contents those furnished with the content IDs not included in the obtained content ID list. The transfer-destined contents have been designated by the transfer-destined content designation unit **216** as discussed above. More specifically, given record IDs from the transfer-destined content designation unit **216**, the second extraction unit **214** acquires the content IDs held in the content ID fields **312** corresponding to the record IDs in question in the property table **252** of the content management database **222**. The second extraction unit **214** checks to determine whether the acquired content IDs are included in the content ID list. As a result of the check, the second extraction unit **214** extracts the record IDs corresponding to the content IDs not included in the content ID list.

[**0100**] It might happen that without recourse to the content management database **222**, the transfer-destined content designation unit **216** successively reads content data from the content storage unit **220** and designates the retrieved data as transfer-destined content data. In such a case, the second extraction unit **214** may directly acquire the content IDs from the retrieved content data and check to determine whether the acquired content IDs are included in the content ID list. This also permits extraction of the content data in accordance with given conditions.

[**0101**] The first extraction unit **212** has the capability to acquire a source ID list from the source ID list reception unit **206** and to extract from transfer-designated contents those contents furnished with the source IDs included in the obtained content ID list. The transfer-destined contents have been designated by the transfer-destined content designation unit **216** as discussed above. More specifically, given record IDs from the transfer-destined content designation unit **216**, the first extraction unit **212** acquires the source IDs held in the source ID fields **314** corresponding to the record IDs in

question in the property table **252** of the content management database **222**. The first extraction unit **212** checks to determine whether the acquired source IDs are included in the source ID list. As a result of the check, the first extraction unit **212** extracts the record IDs corresponding to the source IDs included in the source ID list.

[**0102**] It might also happen that without recourse to the content management database **222**, the transfer-destined content designation unit **216** successively reads content data from the content storage unit **220** and designates the retrieved data as transfer-destined content data. In such a case, the first extraction unit **212** may directly acquire the source IDs from the retrieved content data and check to determine whether the acquired source IDs are included in the source ID list. This also permits extraction of the content data in accordance with given conditions.

[**0103**] If the contents yet to be owned by the content reproducing apparatus **104** and reproducible thereby are to be transferred thereto, the content transferring apparatus **102** may be required to select the content data which are furnished with the source IDs included in the source ID list and which are provided with the content IDs not included in the content ID list. The content data meeting these conditions is that which is extracted by both the first extraction unit **212** and the second extraction unit **214**.

[**0104**] Alternatively, the first extraction unit **212** may perform its extraction process not on all contents designated as transfer-destined contents by the transfer-destined content designation unit **216** but only on the contents extracted by the second extraction unit **214**. Conversely, the second extraction unit **214** may carry out its extraction process not on all contents designated as transfer-destined contents by the transfer-destined content designation unit **216** but only on the contents extracted by the first extraction unit **212**.

[**0105**] The outgoing content acquisition unit **210** has the ability to acquire from the content storage unit **220** the content data extracted by both the first extraction unit **212** and the second extraction unit **214** and to provide the acquired content data to the content transmission unit **204**. More specifically, the outgoing content acquisition unit **210** obtains the record IDs extracted by the first extraction unit **212** and second extraction unit **214**, and AND's the acquired record IDs so as to obtain the record IDs extracted by both units. Alternatively, if the first extraction unit **212** carries out its extraction process only on the contents extracted by the second extraction unit **214** as described above, then the outgoing content acquisition unit **210** need only obtain the record IDs extracted by the first extraction unit **212**. As another alternative, if the second extraction unit **214** executes its extraction process only on the contents extracted by the first extraction unit **212**, the outgoing content acquisition unit **210** need only acquire the record IDs extracted by the second extraction unit **214**.

[**0106**] After the outgoing content acquisition unit **210** acquires the record IDs extracted by both the first extraction unit **212** and the second extraction unit **214**, the outgoing content acquisition unit **210** searches the property table **252** of the content management database **222** for the record IDs in question so as to acquire the codec types and file names of the records carrying these record IDs. Because each file name includes content data location information, the outgoing content acquisition unit **210** reads from the content storage unit **220** the content data in accordance with the acquired file names.

[**0107**] With the codec types and file names acquired, the outgoing content acquisition unit **210** checks to determine whether the content data retrieved from the content storage unit **220** based on the obtained file names is reproducible by the content reproducing apparatus **104** in terms of format and codec type. This check is carried out illustratively by acquiring device information including the content data formats and codec types compatible with the content reproducing apparatus **104** from the apparatus **104** via the PD plug-in **202**, and by comparing the acquired device information with the formats (file names) and codec types obtained from the property table **252**. Alternatively, the content transferring apparatus **102** may prompt the user to designate via the GUI **224** a format and a codec type for allowing the content data to be transferred to the content reproducing apparatus **104**.

[**0108**] If it is revealed following the check above that the content data read from the content storage unit **220** in accordance with the file names is reproducible by the content reproducing apparatus **104** in terms of format and codec type, then the content data in question may be obtained from the content storage unit **220**. If it is found that the content data read from the content storage unit **220** in accordance with the file names is not reproducible by the content reproducing apparatus **104** in terms of format or codec type, then the outgoing content acquisition unit **210** references the parent-table relation table **254** to find out whether the content data reproducible by the content reproducing apparatus **104** in terms of format and codec type is stored in the content storage unit **220**. More specifically, the outgoing content acquisition unit **210** obtains the renditions associated with the content data of interest in the parent-child relation table **254** so as to determine whether the codec types and file names of the acquired renditions are suitable for reproduction by the content reproducing apparatus **104**.

[**0109**] If the content data reproducible by the content reproducing apparatus **104** in terms of format and codec type is not found registered as renditions, i.e., not stored in the content storage unit **220**, then the outgoing content acquisition unit **210** requests the format conversion unit **218** to create content data of an appropriate format and codec type. After the format conversion unit **218** carries out its format conversion process to create the content data of the suitable format and codec type, the outgoing content acquisition unit **210** transmits the created content data to the content transmission unit **204**.

[**0110**] Given the request from the outgoing content acquisition unit **210**, the format conversion unit **218** creates the content data of the suitable format and codec type required of contents. Illustratively, the format conversion unit **218** acquires from the outgoing content acquisition unit **210** the target content data to be converted in format as well as information for designating the target format and codec type. The format conversion unit **210** then converts the acquired content data into the designated format and codec type, and sends the converted content data to the outgoing content acquisition unit **210** while writing a copy of the content data to the content storage unit **220**.

[**0111**] The content conversion unit **218** supplies the outgoing content acquisition unit **210** with information (e.g.,

file names) about the content data created and sent to the content storage unit **220**. The outgoing content acquisition unit **210** additionally writes records of renditions and other information associated with the content data to the property table **252** of the content management database **222**, before updating the parent-child relation table **254** correspondingly.

[**0112**] Alternatively, the format conversion unit **218** during the above process may write information about the content data it created to the tables in the content management database **222**. As another alternative, the format conversion unit **218** may acquire not content data but record IDs from the outgoing content acquisition unit **210** and reference the tables in the content management database **222** based on the acquired record IDs, thereby obtaining the target content data to be converted in format from the content storage unit **220**.

[**0113**] The content transmission unit **204** transmits the content data obtained from the outgoing content acquisition unit **210** to the content reproducing apparatus **104** via the PD plug-in **202**. The content data sent from the content transmission unit **204** to the content reproducing apparatus **104** is content data which can be reproduced by the apparatus **104** under copyright following the extraction by the first extraction unit **212** and second extraction unit **214** and which has yet to be owned by the content reproducing apparatus **104**. Furthermore, the content data is data which, having undergone the processing by the outgoing content acquisition unit **210** and format conversion unit **218**, has become reproducible by the content reproducing apparatus **104** in terms of format and codec type.

[**0114**] The transferable content list display unit **226** displays a list of contents that are transferable from the content transferring apparatus **102** to the content reproducing apparatus **104**. That is, the transferable content list display unit **226** displays a list of contents which can be reproduced by the content reproducing apparatus **104** but have yet to be owned thereby and which can be transferred from the content transferring apparatus **102** to the content reproducing apparatus **104**.

[**0115**] More specifically, the transferable content list display unit **226** acquires from the outgoing content acquisition unit **210** those record IDs in the property table **252** of the contents extracted by both the first extraction unit **212** and the second extraction unit **214** from among transfer-destined contents. The transferable content list display unit **226** then obtains the titles (e.g., track 1, etc.) of the records corresponding to the acquired record IDs, and gets the acquired titles displayed on the content transferring apparatus **102** through the GUI **224**.

[**0116**] Alternatively, the transferable content list display unit **226** may display groups including at least one transferable content. In such a case, the transferable content list display unit **226** acquires from the outgoing content acquisition unit **210** those record IDs in the property table **252** of the contents extracted by both the first extraction unit **212** and the second extraction unit **214** from among transfer-destined contents. With the record IDs acquired, the transferable content list display unit **226** references the parent-child relation table **254** to find the record IDs corresponding to the packages including the contents. The transferable content list display unit **226** then obtains the titles (e.g., album A, etc.) of the records corresponding to the acquired record IDs, and gets the acquired titles displayed on the content transferring apparatus **102** through the GUI **224**.

[**0117**] Alternatively, the transferable content list display unit **226** may display a list of transferable contents or groups as described above and prompt the user to select from the displayed list a desired content or group for transfer to the content reproducing apparatus **104**. In this case, the outgoing content acquisition unit **210** supplies the content transmission unit **204** with the content data constituting the content selected by the user from the list. As a result, only the content data desired by the user is transferred from the content transferring apparatus **102** to the content reproducing apparatus **104**.

[**0118**] The nontransferable content list display unit **228** displays a list of contents which cannot be transferred by the content transferring apparatus **102** to the content reproducing apparatus **104** because the contents in question have not been selected by the first extraction unit **212** from among the contents designated as transfer-destined contents by the transfer-destined content designation unit **216**. That is, the nontransferable content list display unit **228** displays a list of contents (e.g., titles) which have been designated as transfer-destined contents but which are found nontransferable because they cannot be reproduced by the content reproducing apparatus **104**. In particular, if the transfer-destined content designation unit **216** designates as transfer-destined contents those contents designated by the user through the GUI **224**, the nontransferable content list display unit **228** may display a nontransferable content list allowing the user to know that there are nontransferable contents among the user-designated contents.

[**0119**] The timing for the nontransferable content list display unit **228** to display the nontransferable content list may be before or after the transfer of contents to the content reproducing apparatus **104**. That is, nontransferable contents may be displayed as such before their transfer, or those contents that have not been transferred may be indicated as nontransferable after other contents have been transferred.

[**0120**] The functional structure of the content transferring apparatus **102** has been discussed above. Described below with reference to **FIGS. 9 through 17** are typical flows of content transfer processing carried out by the content transferring apparatus **102** embodying the invention. In the description that follows, references will be made to screen examples appearing on the display unit of the content transferring apparatus **102**.

[**0121**] For the ensuing description, it is assumed that the content transferring apparatus **102** transfers to the content reproducing apparatus **104** only the content data subject to copyright management and that the content reproducing apparatus **104** retains only the content data subject to copyright management. It is also assumed that the content transferring apparatus **102** transfers contents only to the content reproducing apparatus **104** holding a source ID list including the source ID assigned to the apparatus **104** itself.

[**0122**] Described first with reference to **FIG. 14** is an initial screen **602** that appears on the display unit of the content transferring apparatus **102** prompting the user to make settings for the content transfer processing. For example, the initial screen **602** displays an album list **608**, selected album information **604**, and transfer destination

device information **606**. Illustratively, the user may select a desired album for transfer and press an arrow button **612** to transfer the contents included in the designated album to the connected device indicated by the device information **606**. The user may also press an automatic transfer button **610** to display an automatic transfer setting screen **702** (to be described later) on which to set automatic content transfer. What follows is a description with reference to **FIG. 9** of an automatic transfer process performed by the content transferring apparatus **102**.

[**0123**] In step S**102** of **FIG. 9**, the content transferring apparatus **102** detects connection of the content reproducing apparatus **104**. In step S**104**, the content transferring apparatus **102** terminates its processing if automatic transfer is not found set for ON. The setting for automatic transfer is made illustratively by the user through the GUI **224** in advance. **FIG. 15** shows an example of a screen which is displayed to prompt a user to perform setting for automatic transfer. On the automatic transfer setting screen **702**, the user may mark a setting checkbox **706** to turn on the automatic transfer setting. If a verification checkbox **708** is marked, the automatic transfer setting screen **702** appears before the content transfer takes place. The user is allowed to mark the names of desired albums in a transferable content list **704** on the automatic transfer setting screen **702** so that the contents of the selected albums may be transferred to the content reproducing apparatus **104**. In this manner, the albums whose contents are desired to be transferred from the content transferring apparatus **102** to the content reproducing apparatus **104** can be verified or designated.

[**0124**] If in step S**104** automatic transfer is found set for ON, the content transferring apparatus **102** goes to step S**106** and checks to determine whether the content storage unit **220** retains at least one content. If no content is found in the content storage unit **220** in step S**106**, the content transferring apparatus **102** terminates its processing because there is no content to transfer. If any content is found in the content storage unit **220** in step S**106**, the content transferring apparatus **102** reaches step S**108** and designates all contents as transfer-destined contents. Specifically, the content transferring apparatus **102** references the content management database **252** to designate the contents to be transferred using record IDs or other resources, as discussed above.

[**0125**] After executing a content extraction process A (in step S**110**) and a content extraction process B (in step S**112**), the content transferring apparatus **102** displays in step S**114** a transferable content list showing album names including at east one transferable content. The displayed list prompts the user to select desired albums to be transferred. The processes A and B will be described later with reference to **FIGS. 10 and 11** respectively, followed by a more detailed description of what takes place in step S**114**.

[**0126**] If no album is found selected from the transferable content list in step S**116**, then the content transferring apparatus **102** terminates its processing. If any album is found selected from the list, the content transferring apparatus **102** in step S**118** transmits to the content reproducing apparatus **104** the content data making up transferable contents included in the selected album or albums (packages). The content transferring apparatus **102** transmits content data that is reproducible in terms of format by the content reproducing apparatus **104**. Whether the content data to be transferred is in a format compatible with the content reproducing apparatus **104** may be determined by acquiring device information from that apparatus **104**. Alternatively, a file format selection screen **802** shown in **FIG. 16** may be arranged to appear on the display unit to let the user select an appropriate format. If the content transferring apparatus **102** does not keep its content data in any compatible format, then it may be necessary to convert the content data into a suitable format. A typical format conversion process will be discussed later with reference to **FIG. 12**.

[**0127**] The process A will now be described with reference to **FIG. 10**. In step S**202**, the content transferring apparatus **102** receives a content ID list from the connected content reproducing apparatus **104**. Then the content transferring apparatus **102** performs a number of processes starting from step S**204** on all records corresponding to the contents set in the type fields **304** of the content management database. Specifically, the content transferring apparatus **102** first acquires a content ID from each record in step S**206**.

[**0128**] In step S**208**, the content transferring apparatus **102** determines whether the acquired content ID is null. If the content ID is found to be null, that means the content ID field **312** for the record in question carries no value. That is, the content data managed with that record is not furnished with a content ID. If the content data is not provided with any content ID, the content data has yet to be subject to copyright management. The content data needs to carry a content ID so as to be subject to copyright management by the apparatus **102**. Since it is assumed that the content reproducing apparatus **104** holds only the content data subject to copyright management, the apparatus **104** presumably does not own content data having no content ID. Therefore the content transferring apparatus **102** can appropriate the content data with no content ID for transfer-destined contents that have yet to be owned by the content reproducing apparatus **104**. The null value may be any other value as long as it indicates that no content ID is found in the content ID field **312** of the record in question in the property table **252**.

[**0129**] If in step S**208** the corresponding content ID field is found to have a value other than null, step S**210** is reached. In step S**210**, the content transferring apparatus **102** determines whether the content ID in question is included in the content ID list. If the content ID is not found to be included in the content ID list, the content transferring apparatus **102** appropriates the content data furnished with the content ID for transfer-destined content data yet to be owned by the content reproducing apparatus **104**. If in step S**210** the content ID is found to be included in the content ID list, the content transferring apparatus **102** writes "1" denoting an "owned" property to the source record corresponding to the content ID in question in the property table **252** in step S**212**. In other words, if the content ID is included in the content ID list, that means the content data furnished with the content ID is already owned by the content reproducing apparatus **104**. Thus the value "1" is written to represent the content as an owned property which need not be transferred. A value of "0" is initially set to denote the owned property for each record in the property table **252**.

[**0130**] The content transferring apparatus **102** verifies in step S**214** that the above steps have been carried out on all

records, before going to the next step. At this point following the content extraction process based on content IDs, the property table **252** of the content management database **222** has "1" set to denote the owned property for each record having a content ID included in the content ID list; the table **252** has "0" left unchanged as initialized to represent the owned property for all other records.

[**0131**] The process B will now be described by referring to **FIG. 11**. In step S**302** of **FIG. 11**, the content transferring apparatus **102** receives a source ID list from the connected content reproducing apparatus **104**. The content transferring apparatus **102** then performs a number of processes starting from step S**304** on all records corresponding to the contents set in the type fields **304** of the content management database. Specifically, the content transferring apparatus **102** first acquires a source ID from each record in step S**306**.

[**0132**] In step S**308**, the content transferring apparatus **102** determines whether the acquired source ID is null. If the source ID is found to be null, that means the source ID field **314** for the record in question carries no value. That is, the content data managed with that record is not furnished with a source ID. If the content data is not provided with any source ID, that means the content data has yet to be subject to copyright management. The content data needs to carry a source ID assigned to the content transferring apparatus **102** so that the content may be subject to copyright management. Since it is assumed that the content transferring apparatus **102** transfers contents only to the content reproducing apparatus **104** retaining a source ID list including the source ID assigned to the apparatus **102**, the content reproducing apparatus **104** presumably can reproduce content data not furnished with the source ID. The assumption is that the content data with no source ID is furnished with the source ID of the content transferring apparatus **102** as described above and that the source ID list owned by the content reproducing apparatus **104** includes the source ID of the content transferring apparatus **102**, as mentioned above. Therefore the content transferring apparatus **102** can appropriate the content data with no source ID for transfer-destined contents that can be reproduced by the content reproducing apparatus **104**. The null value may be any other value as long as it indicates that no source ID is found in the source ID field **314** of the record in question in the property table **252**.

[**0133**] If in step S**308** the corresponding source ID field is found to have a value other than null, step S**310** is reached. In step S**310**, the content transferring apparatus **102** determines whether the source ID in question is included in the source ID list. If the source ID is not found to be included in the source ID list in step S**310**, the content transferring apparatus **102** regards the content data furnished with the source ID as data not reproducible by the content reproducing apparatus **104** and thus removes the data from transfer-destined contents. If in step S**310** the source ID is found to be included in the source ID list, the content transferring apparatus **102** writes "1" denoting a "play" property to the source record corresponding to the source ID in question in the property table **252** in step S**312**. In other words, if the source ID is included in the source ID list, that means the content data furnished with the source ID can be reproduced by the content reproducing apparatus **104**. Thus the value "1" is written to represent the content as a transfer-destined content. A value of "0" is initially set to denote the play property for each record in the property table **252**.

[**0134**] The content transferring apparatus **102** verifies in step S**314** that the above steps have been carried out on all records, before going to the next step. By this time, the property table **252** of the content management database **222** had "1" or "0" set to denote the owned property for each record following the process A above. At present, if the source ID is included in the source ID list, the property table **252** additionally has "1" set to denote the play property for each record having a source ID included in the source ID list; the table **252** has "0" left unchanged as initialized to represent the play property for all other records.

[**0135**] The process of step S**114** in **FIG. 9** will now be described. From the property table of the above-described state, the content transferring apparatus **102** acquires the record ID of each record with "0" set for the owned property and "1" for the play property. That is, the content transferring apparatus **102** acquires the record ID of each record which has a content ID not included in the content ID list and which has a source ID included in the source ID list. With the record ID acquired, the content transferring apparatus **102** references the parent-child relation table **254** to search for a parent ID having the record ID in question as a child ID. With the parent ID thus obtained, it is possible to acquire the record ID of the package. After obtaining the record ID of the package, the content transferring apparatus **102** reads an album name and other information from the record and displays what has been read as a transferable content list.

[**0136**] **FIGS. 13A through 13C** show examples of transferable and nontransferable albums distinguished by their "owned" and "play" properties. All records of the contents included in an album **402** shown in **FIG. 13A** are set to "0" for their owned property **316** and play property **318**. This indicates that all contents are not owned by the content reproducing apparatus **104** and that they cannot be reproduced thereby even if transferred thereto. Because the album **402** does not include any transferable content, the transferable content list does not display any information about the album **402**.

[**0137**] All records of the contents included in an album **404** shown in **FIG. 13B** are set to "1" for their owned property **316** and play property **318**. This indicates that all contents are reproducible by the content reproducing apparatus **104** and that they are already owned thereby. Because the album **404** does not include any transferable content, the transferable content list dos not display any information about the album **404**.

[**0138**] The records of the contents included in an album **406** shown in **FIG. 13C** are all set to "1" for their play property while a record ID**14** and a record ID**15** are set to "0" for their owned property. This indicates that all contents are reproducible by the content reproducing apparatus **104** and that the contents of the record ID**14** and record ID**15** are not owned thereby. Because the album **406** includes two transferable contents, the transferable content list displays information about the album **406**. As described above, the content transferring apparatus **102** displays the names of only the albums that include transferable contents in the transferable content list **704** shown in **FIG. 15**. The user finds it more efficient to select desired albums or contents for transfer based on the above-described list than if presented

with the names of all albums regardless of their contents being transferable or nontransferable.

[0139] How the format conversion process typically takes place will now be described with reference to **FIG. 12**. In step S**402**, the content transferring apparatus **102** acquires from the property table **252** the record IDs extracted by the processes A and B described above. The type fields **402** corresponding to these record IDs carry contents. With the record IDs acquired, the content transferring apparatus **102** in step S**406** acquires all record IDs related to these record IDs as child IDs from the parent-child relation table **254**. The type fields **304** of the acquired record IDs carry renditions. The content transferring apparatus **102** acquires the codec type and file name (file format) for each of the records corresponding to the acquired record IDs. In step S**408**, the content transferring apparatus **102** determines whether there exist renditions having any codec type and file name suitable for transfer to the content reproducing apparatus **104**. If the suitable renditions are detected in step S**408**, the content transferring apparatus **102** retrieves from the content storage unit **220** the content data corresponding to these renditions and sends the retrieved content data to the content reproducing apparatus **104**. In this case, there is no need for the conversion process.

[0140] If in step S**408** no renditions are detected which have any codec type or file name suitable for transfer to the content reproducing apparatus **104**, the content transferring apparatus **102** goes to step S**410**. In step S**410**, the content transferring apparatus **102** creates content data using a codec type and a file format suitable for the transfer. In step S**412**, the content transferring apparatus **102** furnishes the created content data with content IDs and source IDs. In step S**414**, the content transferring apparatus **102** stores the ID-furnished content data into the content storage unit **220**. In step S**416**, the content transferring apparatus **102** adds the renditions corresponding to the stored content data to the property table **252**. In step S**418**, the content transferring apparatus **102** adds the relations between the renditions and the contents to the parent-child relation table **254**.

[0141] How the content transferring apparatus **102** performs automatic transfer has been discussed above. The same extraction and transmission processes as described above apply not only to suitable albums for automatic transfer but also to the albums or contents designated manually by the user as transfer-destined contents on the above-mentioned initial screen **602**. In the latter case, there may exist contents which were designated by the user but which turned out to be nontransferable and thus have not been transferred to the content reproducing apparatus **104**. In this situation, the content transferring apparatus **102** should preferably give a detailed information screen **804** shown in **FIG. 17** on its display unit so as to present the user with a nontransferable content list **806** indicating the contents that have not been transferred.

[0142] The flows of the content transfer processing carried out by the content transferring apparatus **102** have been discussed above. The content transferring apparatus **102** is structured as described in order to transfer only the content data reproducible by the content reproducing apparatus **104**. This structure prevents situations where not only reproducible content but also those not reproduced by the content reproducing apparatus **104** are transferred so that the capacity of the storage unit in the apparatus **104** is wasted. Because the content transferring apparatus **102** does not transfer any content data not reproducible by the content reproducing apparatus **104**, the time required for data transfer is appreciably shortened.

[0143] It is to be understood that while invention has been described in conjunction with a specific embodiment with reference to the accompanying drawings, it is evident that many alternatives, modifications and variations will become apparent to those skilled in the art in light of the foregoing description. Accordingly, it is intended that the present invention embrace all such alternatives, modifications and variations as fall within the spirit and scope of the appended claims.

[0144] For example, the content transferring apparatus **102** was shown to determine whether or not given content data is reproducible by the content reproducing apparatus **104** under copyright on the basis of the source ID attached to the content data in question and the source ID list obtained from the content reproducing apparatus **104**. Alternatively, if the content data of interest is subject to a limited reproducible period or to a limited number of times the data can be reproduced, then the content transferring apparatus **102** may take these restrictions into account before transmitting reproducible content data to the content reproducing apparatus **104**. More specifically, constraints such as content data reproducible periods and content reproducible counts may be stored in the content management database **222** or in some other suitable database in association with content IDs. In operation, the content transferring apparatus **102** of the above-described embodiment may get the first extraction unit **212** and second extraction unit **214** to extract transferable contents. The content transferring apparatus **102** may then refer to the constraints associated with the content IDs of the contents in question, thereby extracting reproducible contents whose reproducible periods or reproducible counts have yet to expire or be exhausted. This preferred structure thus provides a content transferring apparatus capable of transferring contents by taking into consideration not only their source IDs but also any relevant constraints applicable to the contents under copyright.

[0145] Thus the present invention can be applied to a content transferring apparatus for transferring contents to a content reproducing apparatus such as a portable device. In particular, this invention can be applied to a content transferring apparatus for automatically transferring a plurality of contents to the content reproducing apparatus.

What is claimed is:

1. A content transferring apparatus comprising:

a source ID list reception unit for receiving a source ID list from a content reproducing apparatus capable of reproducing contents furnished with source IDs included in said source ID list;

a first extraction unit for extracting from either one or a plurality of transfer-destined contents a content furnished with a source ID included in said source ID list; and

a content transmission unit for transmitting the content extracted by said first extraction unit to said content reproducing apparatus.

2. A content transferring apparatus according to claim 1, further comprising:

a content ID list reception unit for receiving from said content reproducing apparatus a content ID list including content IDs attached to the contents held by said content reproducing apparatus; and

a second extraction unit for extracting from either one or a plurality of transfer-destined contents a content furnished with a content ID not included in said content ID list;

wherein said content transmission unit transmits to said content reproducing apparatus the contents extracted by said first and said second extraction units.

3. A content transferring apparatus according to claim 2, wherein said first extraction unit extracts the contents furnished with source IDs included in said source ID list from the contents extracted by said second extraction unit.

4. A content transferring apparatus according to claim 1, further comprising a format conversion unit which, if the contents extracted by said first extraction unit are in a format not reproducible by said content reproducing apparatus to which the extracted contents have been transmitted, then converts said extracted contents into a format reproducible by said content reproducing apparatus;

wherein said content transmission unit transmits the newly formatted contents to said content reproducing apparatus.

5. A content reproducing apparatus according to claim 4, wherein said newly formatted contents are stored into a content storage unit in association with the previously formatted contents.

6. A content transferring apparatus according to claim 1, further comprising:

a content storage unit for storing a plurality of contents; and

a transfer-destined content designation unit for designating either one or a plurality of contents as said transfer-destined contents from among said plurality of contents stored in said content storage unit.

7. A content transferring apparatus according to claim 6, wherein said transfer-destined content designation unit designates in a suitably timed manner all contents stored in said content storage unit as said transfer-destined contents.

8. A content transferring apparatus according to claim 6, wherein said transfer-destined content designation unit designates user-designated contents as said transfer-destined contents to be transferred from said content storage unit.

9. A content transferring apparatus according to claim 6, further comprising a nontransferable content list display unit for displaying a nontransferable content list of the contents which are designated as said transfer-destined contents by said transfer-destined content designation unit and which have not been extracted by said first extraction unit.

10. A content transferring apparatus according to claim 6, wherein said content storage unit stores said plurality of contents in either one or a plurality of groups, said content transferring apparatus further comprising a transferable content list display unit for displaying a transferable content list of at least one of said groups including at least one content extracted by said first extraction unit.

11. A content transferring apparatus according to claim 1, further comprising a transferable content list display unit for displaying a transferable content list of the contents extracted by said first extraction unit.

12. A computer program for causing a content transferring apparatus to execute a procedure comprising the steps of:

receiving a source ID list from a content reproducing apparatus capable of reproducing contents furnished with source IDs included in said source ID list;

first extracting from either one or a plurality of transfer-destined contents a content furnished with a source ID included in said source ID list; and

transmitting the content extracted in said first extracting step to said content reproducing apparatus.

13. A computer program according to claim 12, wherein said procedure further comprises the steps of:

receiving from said content reproducing apparatus a content ID list including content IDs attached to the contents held by said content reproducing apparatus; and

second extracting from either one or a plurality of transfer-destined contents a content furnished with a content ID not included in said content ID list; and

wherein said content transmitting step transmits to said content reproducing apparatus the contents extracted in said first and said second extracting steps.

14. A computer program according to claim 13, wherein said first extracting step extracts the contents furnished with source IDs included in said source ID list from the contents extracted in said second extracting step.

15. A computer program according to claim 12, wherein said procedure further comprises the step of, if the contents extracted in said first extracting step are in a format not reproducible by said content reproducing apparatus to which the extracted contents have been transmitted, then converting said extracted contents into a format reproducible by said content reproducing apparatus; and

wherein said content transmitting step transmits the newly formatted contents to said content reproducing apparatus.

16. A computer program according to claim 15, wherein said procedure further comprises the step of storing said newly formatted contents into a content storage unit in association with the previously formatted contents.

17. A computer program according to claim 12, wherein said procedure further comprises the step of designating either one or a plurality of contents as said transfer-destined contents from among said plurality of contents stored in a content storage unit storing a plurality of contents.

18. A computer program according to claim 17, wherein said transfer-destined content designating step designates in a suitably timed manner all contents stored in said content storage unit as said transfer-destined contents.

19. A computer program according to claim 17, wherein said transfer-destined content designating step designates user-designated contents as said transfer-destined contents to be transferred from said content storage unit.

20. A computer program according to claim 17, wherein said procedure further comprises the step of displaying a nontransferable content list of the contents which are designated as said transfer-destined contents in said transfer-

destined content designating step and which have not been extracted in said first extracting step.

21. A computer program according to claim 17, wherein said content storage unit stores said plurality of contents in either one or a plurality of groups; and

wherein said procedure further comprises the step of displaying a transferable content list of at least one of said groups including at least one content extracted in said first extracting step.

22. A computer program according to claim 12, wherein said procedure further comprises the step of displaying a transferable content list of the contents extracted in said first extracting step.

23. A content transferring method comprising the steps of:

receiving a source ID list from a content reproducing apparatus capable of reproducing contents furnished with source IDs included in said source ID list;

first extracting from either one or a plurality of transfer-destined contents a content furnished with a source ID included in said source ID list; and

transmitting the content extracted in said first extracting step to said content reproducing apparatus.

* * * * *